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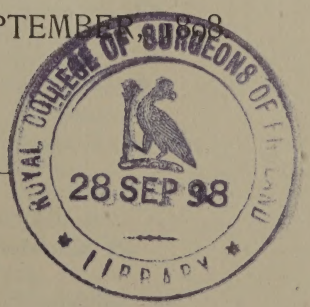

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OCTOBER, 1897.

THE INEFFICACY OF WILDE'S INCISION IN MASTOID EMPYEMA.

By B. Alex. Randall, M.A., M.D.,

PHILADELPHIA,

Clinical Professor of Ear Diseases, University of Pennsylvania, etc.

More than half a century ago, when surgery was more tentative and rationally self-distrustful, Wilde advocated incision down upon the bone behind the ear in case of inflammation of this region, as a means of relieving vascular and edematous tension and securing resolution, if obtainable; while it afforded an easy exit if pus, preformed or consecutive, had to be evacuated. More radical intervention was under the ban induced by its needless and foolish performance, and was not even well weighed in comparison. Later, the boring operations, which continued long the farther steps in any needed intervention, were naturally regarded with dread by those who had not performed them and with distinct trepidation by those who had so done without suffering the disaster which they felt hovered close over such essays. As an antiphlogistic and abortive measure "Wilde's incision" has still some vogue, since it seems open to little criticism as entailing risk; while many authorities (of past decades) have testified to its value.

It is fair to claim that actual conditions as well as views have now changed. Not only has aseptic progress made surgical intervention safer and more skilful and by its greater frequency familiarized the community as well as the profession with its results, but the surroundings of the patients of to-day have decreased their stamina, inclining them to septic infections and their more serious outcomes, as was never before the case unless in the most crowded cities. And this increased

mass of vulnerable and morbid humanity no longer suffers in obscurity, but meets over-zealous attention in multiplying hospitals and dispensaries, where the temptations to brilliant essays of surgery are strengthened by the sad and often disastrous consequences seen in the cases too timidly dealt with. The recent epidemics of "grippe" have largely increased the tendency to severe outcomes of aural inflammation; and the man who leaves a number of these changed factors out of consideration and tries to ascribe the increased resort to radical surgical intervention to operative ambition rather than surgical wisdom, shows as little sense as he would impute to his opponent. There is a large field still for conservatism in this as in every branch of surgery. Occasional cases will always be seen that seem imperatively to demand operation, and yet get well faster without it; and they show that our diagnostic acumen is far from perfect; but the chagrin of one who has advised or done a needless operation should be little to that of one who has closed his eyes to warning symptoms, and let a patient needlessly perish or suffer through months where rational boldness would have controlled the matter in days.

One in the middle course is assailed by both extremes; and looking both ways—unprotected by the narrowness of view which will not recognize blunders—will see the errors in each direction which he has in all human probability made. Cases few or many will be cited to him as proving this or that extreme view as if (granting the accuracy of their presentation,—not always unimpeachable) no other cases could occur. And if he studies the work of his critics, he cannot escape the conviction that a merciful Providence shapes the ends, rough-hew them as the opposing camps may. He often wishes that he could take one or other of the narrow views, and "cock-sure" of his own correctness, close his eyes to all that failed to accord with it: but seeing both Scylla and Charybdis, he owes it to others as well as himself to point them out and urge the middle course.

An understanding of the pathological conditions under consideration is a prerequisite to a rational discussion of therapeutic measures, medical and surgical, and their results; and this will prick the bubble of many a preposterous claim. All parts of the tympanum are apt to share in its involvement, and, as Leidy has shown, the antrum is a part of the drum-cavity. More remote from the Eustachian tube and the usual source of infection than the atrium (drum proper) or attic, it often practically escapes, in that its inflammation is slight and transient; but tenderness on firm pressure is rarely absent on the mastoid over it when there is a high grade of inflammation at the drum-head. With it the adjacent mastoid cells may be involved, but probably in still slighter degree. Of the internal conditions the outward symptoms are but

variable indications. Redness, swelling, and tenderness are often marked, with edema that thrusts the auricle far out of place and strongly suggests fluctuation; and yet this may all disappear in a day or two in a way little short of marvellous. Rational therapeusis may be requisite to permit of such a result; yet it is doubtful how far it actually serves to secure it, for cases may do so without any treatment whatever. Some of these cases may deceive the most expert into the belief that operation is unavoidable; yet periosteal section will evacuate no pus, and if the bone be explored, little abnormality will be found beneath its surface. External periostitis due to deep furuncular inflammation or to burrowing of pus out from the deeper canal or attic can be recognized as the cause of some of these cases; others remain enigmatical. Yet any assumption that real suppuration, still more caries, has been present in or on the mastoid and has been dissipated by treatment is negatived by the actual experience of this and every other branch of surgery. If the most perfect aseptic technique has taught us anything, it is that a clean operation removing pus and all unhealthy tissue will clear the way for the most rapid healing possible; and while this may be "by prime intention," it is rapid if all over in a week. He who claims more than this, with or without operation, does not measure his words. It will require more than X-rays to demonstrate the presence of the caries or the pus which he imagines are there; although it must be freely conceded that the symptoms are strongly suggestive of such conditions.

These are the cases for which the Wilde incision and other measures have been employed and urged as sovereign remedies; and the possibilities of advantage cannot be wholly denied. But clinical experience wholly fails to substantiate the claims of usual or great value. If pus be really present on the surface of the mastoid there is not one chance in twenty that it was formed there. In almost all cases it has burrowed out from the attic or antrum along the canal, or has found its way through the fistulous or cribriform mastoid cortex from the cells within. Such pus might escape through the antrum and drumhead if all granulation masses accessible from the canal have been removed; but it requires strong imagination to believe that it could do so freely enough to give a chance of cure of the suppuration, still less of caries. Too often on opening the mastoid we find that irrigation cannot even be *forced* along this track to find exit by the canal. Such obstruction is one of the prime factors in determining the mastoid empyema. Any assumption that adequate surgical drainage can be secured by this long and devious way is purely gratuitous; and such doctrine can easily be misleading and mischievous. It is generally coupled with the erroneous idea or claim that the mildly helpful meas-

ures urged as potent have been left undone in the cases where operation has proved necessary; and that the operator is such because inexperienced as to the less radical measures or inapt at their employment.

Inexperienced men may, perhaps, needlessly cut down upon the mastoid, and, failing to find the pus which they suppose to be there, may open healthy cells, as I have seen done against my protest. Yet, unless sepsis be present or be introduced by inefficient surgery, healing should take place in five to seven days and the bloodletting may relieve the tympanic inflammation: yet as other measures might have been quite as useful, it is a pity that such a chance of damage (slight though it be) should be taken. On the other hand, few operators of fair experience have failed to see dozens of cases in which Wilde's incision, done by themselves or by others, has evacuated pus and given relief to the immediate condition; but weeks or months of continued or recurrent trouble has shown the futility of leaving the intervention thus incomplete. Months may be taken for carious bone to rot away which might have been safely removed in a few minutes; and all that time the patient is as open as ever to the most serious of the complications incident to his condition. Inadequate operations will continue to be done by men who wish to be radical, if their judgment be at fault as to what tissues are viable of those surrounding the decayed or doomed parts; but this is the better horn of the dilemma. Too often when the need of something more than the Wilde incision has become manifest, they cannot resist the conviction that the case is positively the worse for the iodine, the blistering, or the mere incision with which it has been treated: asepsis of the field is certainly more difficult, if not impossible; and the healing, if uninterrupted, is less kind and rapid.

"But what would you do," is the natural query, "if these long-sanctioned measures are condemned?" Nothing is more important than *rest in bed:* and it should be insisted on in doubtful cases from the start. Then we have in *heat* a measure surpassing, I believe, all others in antiphlogistic value. Cold has general advocacy, for the first day or two at least; but I have never seen failure of the other thermal extreme to better meet all indications. Generally more comfortable at once, as it always is later, it may be used continuously or interruptedly, with assurance that no unfavorable reaction will follow its withdrawal. Stasis is to be overcome, often when we first see the case,—certainly in more advanced stages. The centre of this is apt to be in the tympanum, often beyond an intact drum-head. Applications over the mastoid are apt to be rather remote from the point aimed at, but within the auditory canal our hot douche reaches practically to the seat of trouble, —the heat penetrating where the fluid conveying it is unable to pass.

It is in fashion now to deprecate or condemn the syringe. Asepsis

is said to forbid it; and the up-to-date aurist incises the drum-head under antiseptic precautions, drains or tampons, as it may happen, with sterile gauze filling the canal and covers all with a protective dressing: and claims that he has precluded the danger of mastoid empyema and other serious complications. This sounds very scientific; but I regret to say that it has invariably failed to show me its advantages: the cases so treated have always done worse than the parallel cases syringed. I am now unwilling to try it in severe cases, always selecting the milder cases to test it and douching the worse; but the latter are always the first to get well, and I have often had to fall back upon syringing after all. That our German friends who set 85° F. as the temperature of the douche should not find it useful or comfortable is not surprising,—105° to 110°, or even higher, can be borne with relief and advantage. Let the water be sterile and as hot as the hand can bear, and nothing but good need be expected from its use. Bloodletting may be very useful if employed by leeching or other means before the congestion has reached its acme: after that all such measures reduce the vascular tone, and tend, after momentary relief, to perpetuate if not increase the stasis. Such may also be the tendency of cold: whereas heat (not warmth) will do all that can be done to constringe the vessels, stimulate absorption and resolution, and conserve the vitality of threatened tissues. Its employment on the mastoid surface is best by hot cloths, frequently steeped and changed; since patients will rarely obey injunctions, however strict, as to rapid changes and the highest bearable temperature if poultices are the means. Fifteen minutes is long enough, thrice daily, —the region being covered in the intervals with a warm dry dressing. As to blistering, iodine and such applications, while in absence of better measures they may be more than mere placebos, their value sinks to the vanishing point when heat is used adequately. Too often they are worse than useless.

General measures are usually called for; laxatives or purgatives, sedatives or tonics as conditions indicate. Quinine can easily increase the painful congestion, but is not necessarily contraindicated, since it may most efficiently relieve the stasis, as is well shown in some of the cases cited in treatises which condemn it, where its full exhibition was followed by none of the untoward results ascribed to it. Under such measures, with rest in bed, which constitutes the first requisite, the surgeon who is in doubt as to the actual presence of pus can afford to await developments, even for several days. Operation may be called for by his instinct while pus is still undemonstrable, or the gravity of the symptoms may demand an exploration even when he is morally sure that it is still avoidable, the chances of damage being greater from inaction than from overdoing. Incision of the swollen walls of the

canal will often reduce the ominous mastoid swelling quicker than any attack upon the mastoid integuments: so it may be laid down as a rule that pus on or in the mastoid is the only indication for the Wilde incision. In nineteen out of twenty instances where this is the case, as before stated, the pus comes from beyond the mastoid surface; and the section of the soft parts is but a step towards the evacuation and cure with all speed and safety of the collection. If the knife be really needed, the chisel or spoon is required.

Against such a dictum cases by the dozen will be cited with every sort of plausible or preposterous claim as to the pathological conditions present and the beneficent effect of Wilde's incision. Most of us have suffered that stage of inexperience. Five years ago in reporting at Detroit (*Journal of the American Medical Association*, October, 1892) thirty-two cases of mastoid operation, I cited more than one hundred in which antiphlogistic measures had secured prompt resolution; and each year since has added about 100 cases of the same sort. I then stated that three out of four cases had been brought through without operation; now I can say five out of six, since I have added but a hundred to my list of operations in the same five years. I could add that of the cases coming to timely treatment a far smaller proportion have needed operation: about nine in ten of my operated cases came only when there was no uncertainty as to the presence of pus and the demand for its immediate evacuation.

While kind critics have intimated that my syringe has kept me supplied with mastoid cases, my assistants and students can probably not recall a single case developing mastoid suppuration under my care, for my list shows hardly a half-dozen in as many years. More cases have come to me out of the practice of some more scientific individuals than from among my 1500 new cases per year. That others may not see among that many patients about 100 a year with disquieting mastoid symptoms and twenty to thirty demanding operation, is very probable; and if they have not followed my work it will be easy to suggest that my lists are padded with cases where only an alarmist would speak of mastoid inflammation. A teacher, especially of post-graduates, who habitually presented such views would soon become a laughing-stock. Far oftener my assistants or consultants have blamed my temerity in withholding operation, "at least a Wilde incision;" and only the prompt and perfect result has justified my conservatism.

RESECTION AND ADVANCEMENT OF THE LEVATOR PALPEBRÆ MUSCLE IN TRAUMATIC PTOSIS.[1]

By Charles A. Oliver, A.M., M.D.,

PHILADELPHIA,

One of the Attending Surgeons to the Wills Eye Hospital; one of the Ophthalmic Surgeons to the Philadelphia Hospital, etc.

This brief practical paper is based upon two observations that have recently occurred in the writer's practice. The first which has appeared elsewhere[2] will be merely referred to, while the second, which forms the basis of the present paper, will be described in detail.

R. B. P., a healthy 5-year-old boy, without any history of relevant dyscrasia, applied at my clinical service at Wills Eye Hospital on the 8th day of February of the present year, with the history that two weeks previously he had fallen upon a pair of large scissors in such a way that an open blade had penetrated through the lower lid into the inferior conjunctival cul-de-sac. The instrument passed across the face of the eyeball, and inflicted a deep jagged wound beneath the upper lid in the superior cul-de-sac. When the accident first occurred, the patient was placed under the judicious care of Dr. Oliver B. Sterner, who lived in the neighborhood; atropine and rest being used, which soon relieved all signs of active inflammation.

At the time of my first examination, there was a firmly united and smooth linear scar in the lower lid situated at about five millimetres' distance from the ciliary border. It extended from about four millimetres' distance from the external canthus to about one millimetre from a point corresponding with the lower canaliculus. The inferior cul-de-sac showed faint traces of irregular cicatrization in a corresponding position. The eyeball was uninjured and undisturbed, except that its upward movements were restricted. In the upper cul-de-sac, extending nearly its entire length, there were dense, narrow, and irregular cicatrization-masses which, although binding the globe to the upper part of the lid, did not produce any visible scar. There was almost complete ptosis, the eyeball being covered. The lid could be elevated by the compensating action of the occipito-frontalis muscle to a degree sufficient to expose about three millimetres' width of the pal-

[1] Read before the American Ophthalmological Society at the Fourth Triennial Congress of American Physicians and Surgeons, May, 1897.

[2] Annals of Ophthalmology, April, 1897.

pebral fissure. There was artificial mydriasis, allowing the eye-ground, which was healthy, to be plainly seen.

The left eye and its surroundings were normal.

A few days later the patient was admitted into the wards of the hospital, and on the 17th of the month, the following operation was performed, while the patient was under the general anesthetic influence of ether.

A curvilinear incision about five millimetres above and parallel with the upper border of the uninjured tarsus (which could be felt through the overlying skin) was made through the junction of the middle and the upper thirds of the upper lid.

The upper skin-flap was sufficiently dissected to allow access to the underlying tissues. The fibres of the orbicularis muscle were reached and teased apart, and, after much dissection upward and backward, the torn, ragged ends of the levator muscle were reached. These, after being secured by two sutures, were freed from a mass of false attachments situated far up and in from the lid itself. All loose and useless tissue-material was excised, leaving a clean open wound into which the tendinous extremity of the levator muscle protruded.

The sutures in the tendon of the levator muscle were carried through the upper portion of the undisturbed tarsus and tied, thus attaching the muscle into its proper position. The overlying tissues were replaced and the skin-wound was approximated by five superficial stitches. The operative field was cleansed and covered with a bandage.

Two days later, the bulbar conjunctiva above the situation of the tarsus and in the upper cul-de-sac became almost completely herniated, forcing itself through the palpebral fissure as a protuberant mass. All the sutures were removed. The wound rapidly healed.

The eye was allowed to become quiet until the 5th of March, when a successful attempt to replace and reform the conjunctival cul-de-sac was accomplished by the following method: A linear incision passing the length of the middle line of the skin surface of the upper lid was made with a Beer knife. The cut was extended sufficiently to include the skin, the orbicularis fibres, and the upper third of the tarsus, directly down to the mucous membrane. Care was taken that the conjunctiva was not ruptured. The tarsal conjunctiva was forced into place by catching a hold of its upper part through the lid-wound, and the still protuberant portion above was evenly excised, allowing the escape of some protruding orbital fat.

Three deep sutures, each passing through the upper border of the lower portion of the incised tarsus and then through a loop formed by the cut extremities of the tarsal and bulbar conjunctivæ, were next

made. This was followed by carrying the thread outwardly through the lower border of the upper portion of the tarsus and tying the ends together. By this procedure three incarcerated loops of conjunctiva in the tarsus were obtained, thus securing a perfectly shaped superior cul-de-sac. The skin surfaces were then approximated by fine sutures, and the whole field of operation was cleansed and covered with an occlusive dressing.

In several days' time, the eye doing well, all of the stitches were removed. The eye appeared clear and uninjured, and the lid was beginning to enjoy good movement.

Ten days after the operation a slight muco-purulent discharge from the conjunctiva, followed by a somewhat depressed ulcer in the upper inner corneal quadrand, extending deeply into the lamella, appeared. This unforeseen condition, which was noticed by the Resident Surgeon, Dr. James C. Bloomfield, that morning, and which, he stated, had had a slight hypopyon, lasting for a few hours, associated with it, was soon combated by the use of careful cauterization of the entire circumference of the ulcerous area, associated with the employment of boric acid wash, atropine, and hot stupes.

One week later, without any warning, and while the ulcer was becoming flatter and vascularized, a second discharge of pus into the anterior chamber suddenly appeared. Under the additional use of large antiperiodic doses of quinine this condition quickly subsided.

A week later, the eye was quiet, the ulcer was healed, and the patient was able to raise the lid.

At present writing, the child has good use of the upper lid, there is free movement of the globe in all directions, and the area of corneal inflammation is barely visible.

Remarks.—The case has been considered worthy of report, not only upon account of the peculiarity of the traumatism and the methods adopted for the relief of the resulting condition, but by reason of the extremely rare forms of complication that appeared, and which were so successfully and permanently removed.

The escape of the eyeball from an injury which involved both conjunctival cul-de-sacs; the almost isolated though well recognizable muscle-defect which demanded radical interference; the prolapse of the conjunctiva through the palpebral fissure (most probably due to rupture of the facial connections which are so intimately united with the levator palpebræ and the anterior extension of the capsule of tenon); the recurrent infectious corneal ulcers with deposition of pus into the anterior chamber; the speedy recovery with the free movements of the globe; and the ability to elevate the upper lid: all are of the utmost interest in the clinical study of the case.

heretofore antiseptic midwifery considered this douche essential to a proper preparation for labor.

The bacteriological studies of the vaginal secretions in pregnant women have not been uniform in their results, yet the work of Döderlein, of Krönig, of Menge, of Walthard, and of others renders it almost certain that the vagina sometimes contains pathogenic micro-organisms, although the latter usually have lost their virulence for tissues retaining their normal vital resistance. More important, from the stand-point of the prophylactic antiseptic douche, is the fact, learned by these investigations, that the normal secretions of the vagina have a distinct germicidal value. The removal of this protection afforded by nature, the superficial destruction of tissue by strong antiseptic solutions that leave the tissues less resistant to infecting agents, the fact that douches cannot be relied upon to destroy pathogenic germs that may be present, and the danger of carrying infection by the douche-appliances have induced many obstetricians to omit the antepartum douche as a routine practice.

When the vaginal secretions are faintly acid or alkaline and are abnormal in color and consistence,—that is, when they are dark-green or brown and of the consistence of cream,—repeated scrubbing and douching are necessary, such as are applied to the skin in the preparatory treatment for a celiotomy or other gynecological operation.

Statistics have been offered from lying-in hospitals wherein the antepartum vaginal douche has been omitted and rigid disinfection of all attendants and implements has been employed, and these statistics show the advantage of omitting the routine antepartum douche,—a practice that is daily gaining followers among obstetricians on both continents. For my own part, I am led to believe that the greatest danger of the douche is that of carrying infection to the patient through lack of cleanliness on the part of the nurse and the douche appliances, and for that reason it is my practice and my advice to omit the routine employment of the douche in private practice, while I continue to employ it in my hospital work, where personal supervision assures rigid cleanliness. I cannot declare my position better than by quoting from a recent report of my work at the Preston Retreat.

"The recent discussions as to the disadvantages of a routine antepartum and postpartum douche, based as they were upon bacteriologic and clinical observations by most able and reliable investigators, almost induced me to discontinue the sublimated douche given to every case before and immediately after labor. Recalling, however, the fact that the results of the bacteriologists' investigations of the vaginal secretions in pregnant women are by no means uniform, and reviewing the records of my own institution since the introduction of

the ante- and postpartum douche by the late Dr. William Goodell, and finding therein that more than 2500 consecutive cases without a death from sepsis had received these douches, I was compelled to check for a while my admiration for laboratory results, and to be guided by conservatism.

"In hospital work, when skilled bacteriologic examinations are not to be attained, and when the cleanliness of nurses and of instruments receives constant care and personal investigation, I believe the routine antepartum douche is safe and efficient. In private practice the same measure will often be harmful, because some physicians, many nurses, and very many douche-appliances are not clean, and the safe course for the general practitioner is to omit the douche, except in the presence of a profuse and abnormal vaginal discharge, when the disinfection should be attended to by the physician, and he must be sure of his knowledge of the details of antisepsis. I am not convinced, however, that the routine postpartum douche is necessary after a normal labor. That it can do no harm, when carefully given, is indicated by the results at the Preston Retreat. It is quite possible that equally good results would be obtained by omitting the douche after labor, and throughout a definite period I propose to omit the routine postpartum douche and to compare the temperature records with those of cases that received the postpartum douche.

"A large dispensary practice during the last nine years has demonstrated to me, beyond all possible doubt, that the vagina of the average hospital patient, pregnant or not pregnant, certainly is improved by a clean and cleansing douche. Although the vaginal secretion is said to possess bactericidal power and usually to be free from pathogenic micro-organisms, *sometimes* the latter are present and can be detected with certainty only by a bacteriologist. Douching all cases,—doubtless we douche many cases unnecessarily,—we have the satisfaction of believing that we do not miss the infected cases, and that our douche does some good. Granted that frequent douching with strong antiseptic solutions impairs cell-resistance against micro-organisms, the mechanical removal of bacteria and their products by a single, copious, clean, and mild antiseptic douche can do no harm if all subsequent examinations are conducted with strict personal cleanliness. If examinations do not add infection to thrive upon the tissues whose resistance is thought to be diminished by the douche, then the patient is none the worse for the douche.

"If there are pathogenic microbes in the vagina, the mechanical effect of the douche has a value equal to or it may be greater than the antiseptic effect. At all events, the results closest to my hand, and the lack of uniformity of the laboratory investigations, induce me to let

well enough alone, and to continue the employment of the antepartum douche."

There are other details in prophylaxis that require close attention. The antiseptic solutions used in the lying-in room for cleaning the hands or genitals should always be made with boiled water. The occlusive vulvar dressings must be changed frequently, and must be made of material known to be surgically clean, otherwise occlusive dressings are best discarded. All implements, such as the forceps, sutures, needles, needle-holder, syringe-nozzle, and catheter should invariably be boiled before they are used.

It is my purpose to approach the treatment of puerperal infection from a distinctly clinical and practical point of view, and a comprehensive pathological classification of the several varieties of infection, difficult or impossible to recognize clinically, will therefore be avoided. A quickened pulse, an elevated temperature, and perhaps a chill and putrid discharge, occurring within the first week of the puerperal period, should always make one suspect infection, and these symptoms require a prompt and systematic examination, to ascertain, if possible, the location and the character of the infection. Careful inspection of the vaginal mucous membrane from cervix to vulva should always be made with a speculum to detect possible areas of ulceration, from which I have known virulent infection to spread through the lymphatics of the uterine appendages, sometimes permanently injuring the pelvic viscera and in a few instances destroying the patient. While urging the importance of early inspection of the vagina, it must be borne in mind that the upper portion of the parturient canal is more susceptible to infection, and on account of its anatomical structure affords easy access to wide-spread systematic infection. Thus is explained the clinical fact that in the largest number of grave cases the infection is located primarily in the uterus.

A careful bimanual examination is always needed to detect pain and tenderness in the abdomen and uterus, and to ascertain whether or not there are delayed involution, and fixation of the womb or appendages by inflammatory exudate. For the ultimate diagnosis of some obscure cases of fever a blood examination is desirable. Hyperleucocytosis will indicate a concealed area of infection, and in some cases the *plasmodium malariæ* will make clear the diagnosis of malaria, a puerperal complication by no means so frequent as formerly supposed.

Having decided that the patient is infected, or even when there is a reasonable doubt, a careful disinfection of the parturient canal by means of the douche, the curette, and the gauze drain is always required. Little harm can follow this procedure when properly per-

formed, and the greatest advantage may follow its early employment. No one should attempt to practise obstetrics who is incapable of disinfecting the parturient canal *secundem artem.*

Within the past few years there has appeared a reaction against the curette used for puerperal sepsis, and this reaction has been beneficial, since we have learned that every case of childbed sepsis cannot be cured or even be benefited by routine scraping of the uterus. The dangers of perforating the womb, of carrying infection into the uterus through ignorant and faulty technique, of opening new avenues for absorption of toxic agents already present in the uterine or vaginal canal, of destroying the lymph-barriers erected by nature to cut off lymphatic or circulatory absorption,—all these dangers have been freely discussed, but they should not deter us from utilizing a most valuable means of treatment at the *right time* and in the *right manner.* My experience with this class of cases has taught me that the curette accomplishes the best results in puerperal sepsis only when it is used early and thoroughly.

With the first symptoms of infection—an ill-smelling discharge or an elevated temperature or a rapid pulse not otherwise accounted for—the uterus is digitally examined, under ether if necessary, and always with most rigid antisepsis. Infected wounds of the vagina, of course, must not be overlooked. The finger will tell you where to use the curette, and it should be an inflexible rule of practice only to scrape where the finger has found decidual or placental excrescences or areas of soft and perhaps necrotic tissue. Curettage of the uterus properly performed at this early stage of infection, preceded and followed by irrigation with very large quantities (a gallon) of sterilized or, if you choose, antiseptic fluid will accomplish good results. It is true that clean obstetrics will almost banish the curette from the obstetric bag and from the lying-in hospital. The number of curettements at the Preston Retreat in 900 consecutive deliveries has been only nine, but my notes of cases contain a large number collected from consultation work outside the Retreat.

For cases of puerperal sepsis further advanced than those just mentioned, are curettage and drainage by means of gauze to be employed, or are they not only useless but even dangerous?

The degree and kind of infection and the local pelvic condition of the patient help to answer this question. When the infection has spread beyond the parturient canal and has invaded the lymphatic or venous channels, the employment of the curette comes too late to achieve its greatest value. But clinically we cannot always be sure that it is too late, and therefore its routine employment is desirable, except in cases evidently saturated with poison and necessarily fatal.

Heretofore several varieties of septic endometritis have been described, such as catarrhal, purulent, diphtheritic, dissecting, and gangrenous. Döderlein has simplified this matter by describing two varieties, the putrid, due to saprophytes, and the septic, due to streptococci. For the former the curette is always efficient, for the latter its usefulness is limited largely to its early and prompt employment, with a technique capable of preventing interference with nature's effort to localize the disease. I refer to a digital examination of the uterine cavity and to avoid scraping uninfected areas of the endometrium. It is the last-named variety that often requires frequently repeated irrigation of the uterus for several days following the curettement.

Uterine phlebitis is aggravated by the curette. Indeed, a rapid rise in the temperature, a severe chill and increased rapidity of the pulse following the use of the curette, aids in the diagnosis of uterine phlebitis, along with other symptoms, such as the late appearance of the fever, the absence of pelvic pain and tenderness, the severity and frequent repetition of the chills, the marked remissions in the temperature-curve, and the appearance of metastasis, especially as a septic pneumonia.

Finally, the local pelvic condition will sometimes contraindicate the use of the curette. When the tubes, the ovaries, and the connective tissue, or the peritoneal cavity, contain pus, it is certain that the curette is not to be considered, and that more serious surgical measures are required.

Turning now to the surgical problems of the puerperal period, I shall briefly discuss the kind of cases that require the surgeon's aid. Since Tait advised and practised opening the abdomen for puerperal sepsis not more than a decade has passed, nevertheless, the value of such a measure is established, and increasing experience is making clear the indications and contraindications of celotomy in recent septic cases. Experience has shown that abdominal section for diffuse suppurative peritonitis following childbirth is usually a failure, and that operation by the vaginal as well as by the abdominal route, when performed early, is usually successful for localized pus collections in the peritoneal cavity, or in the tubes, ovaries, or pelvic connective tissue. Within the past three years hysterectomy has been proposed for two classes of cases of puerperal sepsis. One class of cases for which puerperal hysterectomy is advocated comprises all cases of pelvic infection, where, after the removal of a tubal or ovarian abscess, there will be left behind in the pelvis infected and infiltrated broad ligaments or a uterus containing areas of infection or suppuration, which finally either spreads to the peritoneum and causes a fatal peritonitis, or which permits septic absorption to continue until the patient succumbs. The

other class of cases for which hysterectomy has been proposed comprises early cases of grave infection going from bad to worse under the usual treatment by curettage, irrigation, and stimulants, in which cases there are no physical signs indicating that the local septic process has spread beyond the womb, and for which immediate hysterectomy is performed (usually within the first week after delivery) in order to abruptly terminate septic absorption in time to save the patient's life.

It is usually not difficult to decide for or against puerperal hysterectomy after one has opened the abdomen for pelvic inflammation following labor. The great difficulty is to decide whether a beginning case of puerperal sepsis should or should not be subjected to so grave an operation. The operations performed for early puerperal sepsis have been so few that it is impossible to formulate a definite rule of action to guide us in the management of these cases. With the knowledge of this important subject now at hand, my own course in a given case is about as follows: With the first appearance of rapid pulse, chill, fever, offensive discharge, and abdominal tenderness, a careful examination of the parturient tract and adjacent structures is made. If indicated, the uterus is carefully and thoroughly curetted, irrigated, and lightly packed with iodoform gauze, and free catharsis is obtained by salines. If within a day or two the patient has grown steadily and rapidly worse, and there are *physical signs of inflammatory material within the pelvis or abdomen*, further delay in opening the abdomen is dangerous, and when opened, if the uterus or broad ligament shows pus collections or infected areas, hysterectomy is performed. When the septic inflammation is confined to localized areas within the peritoneal cavity, or to the tubes and ovaries, irrigation and drainage are enough for the former and salpingo-oöphorectomy for the latter. Should the very rare extraperitoneal collection of pus within the folds of the broad ligament be encountered, the abdomen is closed, and the abscess is evacuated and drained either through the vagina or over Poupart's ligament.

Thus far reference has not been made to operative treatment that is sometimes necessary for a sharp attack of peritonitis due to the bruising or tearing during labor of inflammatory material or tumors whose presence in the pelvis antedated the labor. These cases are to be dealt with according to the recognized principle that pus should be removed whenever and wherever found. In view of the prevalence of pelvic inflammatory diseases, at first thought it is surprising that this origin of puerperal inflammation is not more frequently observed, yet the rarity of these cases is extreme, and can only be explained by the sterility which accompanies tubal and ovarian diseases. In my experience with nearly 1500 deliveries only one case of peritonitis due to

vidual cases he is confronted with the difficulty of determining whether his patient is the victim of infection due to a single or to a combination of several varieties of micro-organisms.

The employment of serumtherapy will necessarily be experimental until we learn (*a*) whether a special serum, by some peculiar action upon the body-cells, is capable of inhibiting and destroying the micro-organism when present in small or in large numbers, or (*b*) whether the serum is only a chemical antidote to the toxin produced by the micro-organism, or (*c*) whether the serum is endowed with both properties. Until those problems are settled and until reliable sera have been prepared from other micro-organisms than the streptococcus that are known to be the cause of puerperal infection, the clinician cannot apply serumtherapy to his cases in a scientifically exact manner.

The infectious disease in which an antitoxin treatment has exhibited its greatest curative value—namely, diphtheria—has, in its clinical and pathological manifestations, many phenomena which indicate the probable failure of an antitoxin treatment for most cases of grave puerperal infection. Vaughan (*Medical News*, February 27, 1897) has recently remarked that the diphtheria antitoxin does not destroy the Klebs-Löffler bacillus; that it antagonizes and antidotes the toxin produced by the bacillus until, and within a comparatively short period, the diphtheria bacillus naturally loses its virulence for the individual attacked by it. In diphtheria there is not a wide-spread systemic infection with bacilli throughout the lymph or venous channels.

In the grave forms of puerperal infection the opposite obtains. The infecting agent does not lose its virulence for the individual attacked, and there quickly follows rapid multiplication of the germs in the veins and lymphatics. If the serum cannot destroy the activity of micro-organisms then it cannot have a curative value, for sooner or later the patient must be overwhelmed. If, however, it can be or has been demonstrated that the serum actually destroys or inhibits the growth of the micro-organisms, then its prompt and early employment in a case with a bacteriologic diagnosis, combined with local disinfection, should be the ideal treatment. While these problems are being determined by pathologists it is our duty not to forsake old methods for this new method of treatment, and not to lose sight of the fact that local antisepsis, intrauterine irrigation, the curette or other surgical means in proper cases, and the free use of stimulants have saved many lives. Furthermore, it must always be remembered that the use of a serum is by no means free from danger, and therefore it is to be used with caution.

The experience I have had with the antistreptococcic serum, and my knowledge of the results obtained by others who have employed

the serum treatment of puerperal infection, have induced me to formulate the following rule to guide me in treating cases I may see in the future:

While a careful and early bacteriological study of the secretion from infected areas in the vagina, the cervix, or the endometrium is in progress the patient should be subjected to the usual antiseptic and stimulating treatment. The results claimed for hyperleucocytosis, induced by nuclein, warrant the employment of that remedy as an adjunct to the general treatment. Finally, should the bacteriologic study of the case demonstrate the presence of streptococci, Marmorek's or other equally reliable serum should be administered in doses of at least ten cubic centimetres daily for three days. The local antiseptic treatment meanwhile should not be neglected. When the streptococcus is found unassociated with other micro-organisms, it is my conviction that a reliable serum employed early and before wide-spread and systemic infection has occurred, often will be efficacious. It is a pertinent fact, however, that there are some varieties of streptococci that are not controlled by Marmorek's serum. On the contrary, when the infection is mixed in character the antistreptococcic serum will avail little, and when streptococci are not present it will be useless. It is possible that other sera will some day be available for the treatment of infection due to other micro-organisms frequently found in puerperal infection,—for example, the staphylococci and the bacillus coli communis. Should that be the case, the inherent difficulties surrounding reliable bacteriologic investigations of puerperal patients will necessarily limit the usefulness of serumtherapy in the hands of the average physician, unless future investigations provide us with a "mixed serum" capable of antagonizing the micro-organisms commonly associated in the grave forms of puerperal infection.

The practical conclusions from my remarks may be recapitulated as follows: (*a*) Contact of the physician or nurse is the most frequent cause of puerperal sepsis; (*b*) in obstetric practice make as few vaginal examinations as possible; (*c*) omit the anti- and postpartum douche as routine practice; (*d*) at the first appearance of puerperal sepsis give the parturient canal one thorough disinfection; (*e*) be sure not to overlook localized pelvic inflammation which may require a major operation; (*f*) use stimulants fearlessly, employ injections of normal salt solution, under the skin, into the rectum and intravenously, and try the administration of nuclein; (*g*) before employing an antistreptococcic serum be sure that you have to deal with a pure streptococcus infection.

A CASE OF PSYCHIC ANESTHESIA.[1]

By Charles W. Burr, M.D.,

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Clinical Professor of Nervous Diseases, Medico-Chirurgical College.

At the November meeting of the Philadelphia Neurological Society (*Journal of Nervous and Mental Diseases*, May, 1897) I reported the case of a woman who, suffering from mind blindness, was also unable to recognize objects by touch, though tactile sense was normal. I suggested the name tactile amnesia for the condition, maintaining that it was analogous to amnesic aphasia. At the time the report was made I had seen but one other case, and in both there were other symptoms. Soon after a gentleman came to me complaining of the same trouble, unaccompanied by other symptoms, confined to one arm, and due, as will appear, to an entirely different cause. His history is as follows: B. C., 24 years old; single; family and personal history negative. When about 10 years old he was accidentally struck on the side of the head by an axe-handle with such force as to throw him into a river, on the bank of which he had been standing. At first he was thought to have been drowned, but examination of the head showed a simple depressed fracture of the right parietal bone over the motor area. He remained in a state of alternate coma and delirium for about three weeks. On recovering normal consciousness he found himself partially paralyzed on the left side, including the face, and completely anesthetic upon the same side. The palsy and anesthesia entirely passed away in a few months, sensation returning before motion. He was supposed to have recovered completely until, on putting his left hand in his coat-pocket for the first time after his illness, he discovered he could not tell what he had in his grasp, though he had the sense of touch. Little attention was paid to this symptom at the time, and he was told it would soon pass away. It has not.

Examination.—He is a spare but fairly healthy-looking young man. He is scholarly and thoughtful but neurotic, supersensitive and morbid. The left leg, arm, and face are slightly smaller than the right. There is no palsy of either side, but he uses the left hand a little awkwardly. Gait and station are normal. The knee-jerks are equal and a little exaggerated. There is no depression nor pain on pressure at the seat of the alleged fracture. Pressure on the vertex over an area

[1] Read by title at the meeting of the American Neurological Association, at Washington, D. C., May, 1897.

about as large as a one-cent piece causes mental confusion, a condition of dreaminess, and if continued light hypnotic sleep. With the eyes shut he recognizes well variations in the positions of the hands or arms. Tactile sense is normal on both sides. On the entire left side, even on the finger-tips, he fails to localize touch. He is absolutely unable to recognize any object put in his left hand, but knows he is grasping something. His grasp is good and remains good when the eyes are shut, there being no muscular relaxation even after several minutes. In the right hand there is no sensory trouble. On both sides temperature and pain sense are normal, and he can distinguish dull from sharp. There is no difficulty with speech, vision, hearing, taste, or smell. The urine is normal. Examination of the thoracic and abdominal viscera is negative.

Dr. M. W. Zimmerman examined the eyes and reports, "Right eye: The media are clear and the fundus is normal. The field is difficult to take, the eye easily wandering in any direction without apparent reason or object. On the temporal side the red field extends beyond the blue. Left eye: The media are clear and the fundus is normal. Fixation is less difficult. The red field extends beyond the blue in the larger part of the circumference. There is practically no contraction of the field for white in either eye. The fields were taken several times on different days and were constant. The pupils are equal and react well to light and with accommodation."

To sum up, we have a man who for some years, ever since a serious injury to the head causing a temporary hemianesthesia and hemiplegia, has lost the ability to recognize objects by touch in the left hand, though simple tactile sense and the so-called muscle sense are preserved, and who has also a partial reversal of the fields of vision, is neurotic and susceptible to hypnotism.

Simple as the symptomatology of the case is, there is much in it that is at present inexplicable. It contains problems of as much interest to the physiological psychologist as to the neurologist. It differs—and this is of importance—from similar cases in the loss of the ability to localize sensation, and I cannot but believe that this inability stands in close causal relation to our patient's loss of the power of cognizing objects by touch. Touch cognition is in reality a very complex process. To do it accurately tactile and sometimes pain and temperature sense, muscle sense, and power of localizing must be normal. We have much to learn concerning all these. Muscle sense certainly depends upon the afferent impulses from the joints, the muscles, and, though in much less degree, the skin. The means by which we localize a touch on finger or toe, as happening at any one point, the psychologists have not yet settled for us, and how we group the many sensations

from an object into one whole is absolutely unknown. In my other case the difficulty lay in interpreting the sensations felt, because of the loss of the stored up tactile images, the patient having in other words no sensory tactile recollections with which to compare her present sensations. Hence the name tactile amnesia. But in this present case, as said before, there is another element. The patient cannot localize, and it is easy to understand that if, for example, while holding a key, he cannot tell what fingers the sensations come from or even refers some to the upper arm he can have no proper conception of the form of the key, cannot tell that it is a key. It would seem as if there was here a contradiction in the statements of the patient. If he knows the positions of the fingers and can feel touch, such knowledge should aid him in recognizing the object grasped. Yet he says he cannot. We are at the mercy of his veracity, and my personal knowledge of him is such that I believe him. Since the trouble seems to depend in this case upon the loss of the localizing sense, and we have no means of knowing whether he has tactile amnesia or not, it will probably be wiser to call it by the broader and less definitive term psychic anesthesia.

What central lesion has caused the symptom and where it is situated cannot be determined. It is most probable that he had a fracture of the parietal bone with slight injury to the motor cortex and the neighboring sensory region. The injury could not have been severe or the hemiplegia and hemianesthesia would not have been so transient and the recovery so complete. But it is not proven that his present trouble depends upon the same lesion. Parietal fracture with hemiplegia and temporary anesthesia is very frequent. Psychic anesthesia is very rare. I am inclined to believe that in this man the condition is hysterical. He is hysterical in temperament, has partial reversal of the visual fields, and is susceptible to hypnotism. I think the physical injury has simply acted to suggest the symptom, which in many regards is like the "systematized anesthesia" not infrequent in hysteria. This does not explain very much, but further we cannot go.

The Consumption of Tobacco.

The annual consumption of tobacco in Holland is a little over seven pounds a head; in the United States, 4.5 pounds; in Austria, 3.8 pounds; Denmark, 3.7 pounds; Switzerland, 3.3 pounds; Belgium, 3.2 pounds; Germany, three pounds; Sweden and Norway, each 2.3 pounds; France, 2.1 pounds; England, a little under two pounds; Italy, Russia, Spain, 1.25 pounds. It is estimated that 2,000,000,000 pounds' weight are used annually, of a money value of more than $2,500,000,000.

THE TECHNIQUE OF PIROGOFF'S AMPUTATION OF THE FOOT.

By Gwilym G. Davis, M.D., M.R.C.S. (Eng.),

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I have ventured to bring this operation to your notice because it appears to me to be one of great merit, particularly in cases of railroad injuries, and because the satisfaction to be derived from it will depend largely on the manner in which it is performed.

Judging from a long period of observation of the operation as done on the cadaver in classes in operative surgery, and also as done on the living body, it is apt to be both a tedious and slovenly performance, and the subsequent results in the living are not so good as would be the case had more care been bestowed on its doing.

The technique now suggested is as follows: The left foot, being the one to be operated on, is resting on its outer side, sink the knife into the tissues of the sole and side of the heel down to bone, on a line with the posterior edge of the internal malleolus, and prolong the incision directly upward to the upper edge of the swell of the ankle: this will be about three centimetres, or an inch and an eighth, above the tip of the malleolus. Turn the foot on its inner side and grasping the heel with the left hand continue the incision across the sole of the foot and up the outer side along the posterior edge of the external malleolus and fibula until it reaches a point opposite to the ending of the first incision. The foot, resting on its heel, is now firmly extended and the two ends of the side incisions joined by another curved one, forming an anterior flap one inch in length. This is turned back, and by a touch of the knife on each side the tissues are separated from the posterior surface of the bones sufficiently to allow the passage of a director or other instrument to prevent the tissues being injured by the saw. The leg-bones are now sawn through just above the swell of the ankle, the posterior flap separated downward by a few strokes of the knife, and the calcaneum sawn through in the line of the skin incision. The projecting outer corner of the fibula is removed, and the fragment of the calcaneum is brought upward, fastened securely to the tibia by means of chromicized catgut passed through holes in the bones and the skin wound closed by interrupted sutures without drainage.

The incision across the sole of the foot is placed farther back than is that of Pirogoff's, or of Watson's or Pirrie's modification. In order to divide the calcaneum in their operations it is necessary to place the saw so far behind the line of incision that the flap will be torn unless it is retracted. It is to avoid this that Treves, Agnew, and others have advised that the heel-flap be dissected back a quarter of an inch or more. It is difficult and troublesome to saw the bone under these conditions, and is not required if the two ends of the plantar incision are carried along the posterior edges of the malleoli.

Placing the incision so far back does not endanger the artery, for the two are still separated by the tendons of the tibialis posticus and flexor longus digitorum.

The plantar incision is prolonged upward to the upper edge of the swell of the ankle in order to allow of a high section of the bones. The anterior flap is made an inch long, in order to allow for the retraction which takes place consequent on making the incision, while the foot is in an extended position. The bones are sawn through at a higher level than usual in order to make a thinner and shorter stump. This reduces the difference in width between the two ankles when an artificial foot is worn, and renders the deformity less conspicuous. It also raises the stump sufficiently to allow of a cylindrical joint being used instead of two side joints, thus adding to the strength and durability of the appliance. By making the section of the bones in the manner described an ordinary amputating saw can be used in the usual manner. It is not necessary to use a small saw with a movable back, as advised by Heath, nor a small narrow saw, as did Pirogoff, nor a butcher's saw, as recommended by others. The prominent outer corner of the fibula is removed to obviate pressure on the side of the socket of the artificial leg.

The high section of the leg-bones always allows the heel-flaps to be brought up into position without any tension on the tendo Achillis. To avoid and remove any tension on the tendo Achillis Pirogoff advised removing, if necessary, an additional slice from the tibia. Sédillot, Busk, and Günther advised an oblique section of the bones. Sir William Ferguson ("Practical Surgery," p. 427) advised section of the tendon for the same reason. He said, "I am so satisfied of the advantage of dividing the tendo Achillis in this operation that I recommend it as a preliminary step, to be performed much as in a case of talipes." Agnew also ("Surgery," Vol. II, p. 360) advised its division in case the bone did not readily come into place.

Addinell Hewson, Sr. (*American Journal of the Medical Sciences*, 1864, II, p. 121), to whom we largely owe the popularization of the operation in this city and country, was accustomed to apply a broad

piece of adhesive plaster to the back of the leg to prevent the calf muscles from drawing the calcaneum up.

These facts are sufficient evidence that inability to approximate the sawn bones is of frequent occurrence in this operation, as usually performed.

Mr. Jacobson, in his "Operative Surgery," advises fastening the calcaneum to the tibia with chromic catgut or silver wire. This I have made a practice of doing, preferring the chromic catgut. It prevents displacement and insures better and quicker union of the bones.

Removal of the foot by sawing the bones instead of disarticulating, originally suggested by Watson or Pirrie, adds greatly to the ease and quickness of the operation. A high section of the leg-bones obviates the necessity of clearing the malleoli of the soft tissues for the application of the saw.

In the performance of the operation as here described, it can be done easily and quickly, the foot can be removed without undue haste in less than three minutes; no difficulty is experienced in the application of the saw; the edges of the flaps are not lacerated by it; the bone comes readily into place; and the resulting stump is the best possible for a serviceable and artistic artificial appliance.

A CASE OF SYRINGOMYELIA.[1]

By Theodore Diller, M.D.,

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Syringomyelia, when it presents itself by typical symptoms, may be readily recognized; for there are now on my record many cases in which the antemortem diagnosis was confirmed by the autopsy.

The diagnosis of syringomyelia, like that of any other diseases, is made by the presence of a certain number of symptoms; and the difficulties in diagnosing always increases as the picture presented by the symptoms-complex departs from that regarded as typical of the disease.

While such highly distinctive features as dissociation of sensation in syringomyelia, tremor in paralysis agitans, and ataxia in tabes are

[1] Paper read at the meeting of the American Neurological Association, at Washington, D. C., May 3, 4, 5, 1897. The patient was exhibited at the meeting of the Pittsburg Academy of Medicine.

of the utmost value when present in these diseases, we should, if possible, be able to recognize these affections in the absence of their most distinctive signs.

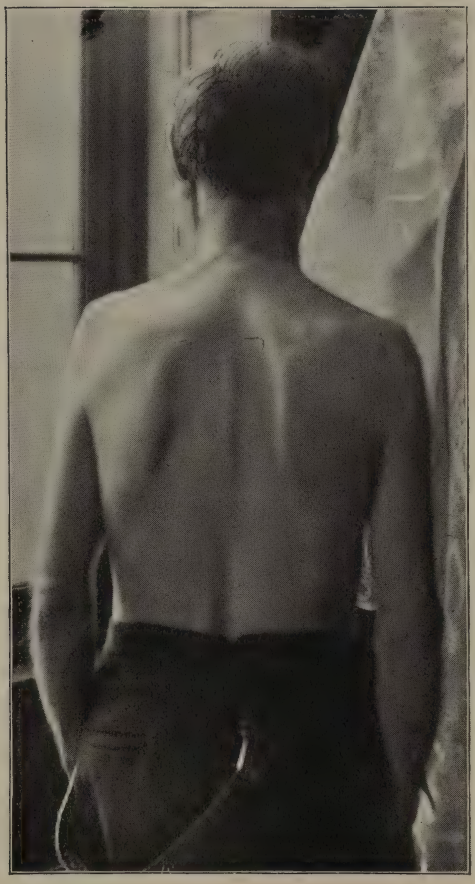
Now that the symptoms distinctive of a typical case of syringomyelia are pretty well known, the question will often come up in individual cases presenting symptom-groups, exhibiting more or less departure from the clinical picture of syringomyelia, which we may call the "type," as to whether or not they are cases of this affection. It may be that the diagnostic importance of this or that symptom has been over-estimated, or that the full significance of others has not been fully realized. As is well known, there are a considerable number of cases of syringomyelia which presents so few symptoms as to make their recognition impossible. There is a certain number of other cases, it is reasonable to suppose, which are not now recognized, but which will be when our interpretation of the significance of the various symptoms and their relations to each other shall have become more exact.

The chief interest in the case about to be related centres upon this question of diagnosis. Although I am of the opinion that the case is really one of the syringomyelia, I can readily understand how this diagnosis might be questioned; and my main object in bringing the case before this Association is that it may be fully discussed. If it be accepted as a case of syringomyelia, we will have to some extent increased the horizon of our clinical knowledge of this disease.

History.—Married man, aged 50 years; store-keeper; good habits; denies syphilis.

About eight years ago he was seized with what he calls "terrific" pains in the back and the shoulders, which lasted about sixty days. Then for about the same length of time he was free from them, when they returned and lasted about nine months, then again ceased, and he has been only occasionally troubled with them since.

A few months later he noted a certain "clumsiness" of his fingers. He could not tie a package with the same facility as formerly; his cigar would often fall from between his fingers, and unless his eyes were directed upon it, he would not know that it had fallen. He could not grasp objects with the same certainty as before, and he required the use of his eyesight a great deal in their execution. About this time he began to notice that the sense of appreciation of hot objects was defective in his hands, and he often burned his fingers in consequence. He noted, too, that blisters raised readily on his fingers; and that this was not due to defective heat-sense alone is shown by his statement that blisters have appeared on the fingers after he had grasped objects like steam-pipes of known temperature, and which had not, at the same temperature, ever produced blistering before the



Dr. Diller's Case of Syringomyelia.

ROYAL COLLEGE OF SURGEONS OF ENGLAND
20 OCT 57

onset of this trouble. Through the exercise of unusual caution, he has greatly, of late years, lessened the number of these accidents.

No blistering or ulcers occurred, except through heat in the way described. He has always recognized cold objects better than hot ones. Soon after the onset he experienced a sensation as though cords were about his waist. This lasted only about two months. Almost from the beginning of the trouble he has, at times, noted tremor in his hands, particularly after use. Very early in the disease he observed weakness of his shoulder and arm muscles, and this has slowly increased. The back of his neck was remarkably sensitive to touch (more so at some times than others); he states that a fly walking across it felt like a red-hot iron.

Although a great deal disabled, he managed to go about from place to place, acting as agent, until quite recently, when he suffered to some extent in a railroad wreck. It was while he was convalescing from the effects of this accident that I examined him in the Allegheny General Hospital.

Examination, March, 1897.—Mentally he is bright enough, although there is the "wooden" expression on the face. There is no disorder of speech.

Prolonged efforts bring on a very marked, coarse tremor. He picks up a pin with difficulty and cannot button or unbutton his vest. He could do so, he states, before the accident.

He is not able to raise the left arm to the horizontal position, and the right one he can raise to only a little above the horizontal. There is marked atrophy of the muscles of the shoulder-girdle and of the upper arm, as shown in the accompanying photograph. There is localized wasting of the posterior portions of the deltoids. There are marked fibrillary twitchings in these wasted muscles. The grasp of the hands is feeble. There is no spinal curvature, except a moderate accentuation of the normal posterior curve. Both knee-jerks are greatly exaggerated, and marked ankle-clonus is present. Both elbow- and wrist-jerks are exaggerated. A very marked wrist-clonus is present, especially on the right side.

Tactile, heat, cold, and pain senses are all diminished, in both hands and forearms. This diminution coincides in areas which are as follows: On the left side it includes the entire hand, extending almost up to the elbow on the flexor and inner surface, and to the middle of the upper arm on the extensor outer side. On the right side it extended along the flexor inner surface to the elbow. On both sides the diminution of sensation was most marked in the hands, and fade out gradually at the upper limits named; and it was more marked in the left than in the right. Tactile and pain senses are about equally dimin-

ished, but are nowhere absent. Of all forms of sensation the diminution is greatest for heat and least for cold. There is a very marked difference in his appreciation of hot and cold objects. There is a moderate diminution of muscular sense in the hands and arms.

There is a very marked hyperesthesia at the back of his neck, from the occipital protuberance to the seventh cervical vertebra.

His visual fields are normal; both pupils react normally to light and accommodation.

His gait, although somewhat spastic, is fairly good.

Remarks.—The progressive muscular atrophy of the shoulder-girdle with fibrillary twitchings and the spasticity with exaggerated reflexes and the clonus, taken alone, would point to amyotrophic lateral sclerosis. Indeed, this diagnosis at first sight seems to me the correct one, as it had to Dr. Brown, the *interne* of the Allegheny General Hospital, who had examined the case before me.

But the long existence of the disease (for eight years) without any appearance of bulbar symptoms, the history of severe pain, and the presence of marked disorder of sensation of all kinds, in the hands and arms, were each argument against this diagnosis, and taken together make an argument so strong, in my opinion, as to overthrow it altogether.

The diagnosis of syringomyelia rests upon sensory symptoms (pain) at the onset; the progressive muscular atrophy and palsy with fibrillary twitching of the shoulder-girdle and the diminution of all forms of sensation in the hands, and frequent blistering of the fingers. While dissociated anesthesia was not present, still it is a significant fact that the heat sense was more impaired than any other, and tactile sense least of all; so it can be said that the sensory phenomena present approached those known as dissociated anesthesia.

If the case be looked upon as one of syringomyelia, three features present themselves to render the case an atypical one,—viz.: The very severe nature of the spinal pains at the onset, absence of true dissociated sensation, and the presence of such very marked exaggeration of reflexes with clonus.

The symptoms presented by the patient bear certain resemblance to those seen arising from tumor of the cord and progressive spinal muscular atrophy; but certain points present themselves by which these diseases may be excluded. Some of these have been mentioned. The real difficulty in diagnosis, after all, lies in deciding between pachymeningitis hypertrophica cervicalis and syringomyelia. The similarity of these two affections has already been pointed out by Bramwell,[1] Lloyd,[2] and others.

[1] Diseases of the Spinal Cord, p. 415.

[2] Nervous Diseases, by American Authors, p. 538.

The great severity of the initial pains, the impairment of tactile along with other forms of sensation, the rather uniform distribution of the atrophy, the marked exaggeration of reflexes, all favor pachymeningitis hypertrophica cervicalis rather than syringomyelia.

On the other hand, the rather long course of diseases; the great loss of sensation for heat; the blistering of the fingers; the absence of bone-disease to account for meningitis, and of the characteristic deformities of the hand, described by Charcot as present in pachymeningitis, all point to syringomyelia.

Indeed, I do not believe that the differential diagnosis between these two affections can, with certainty, be made in this case, since the indications pointing to both seem almost evenly balanced. Yet, after considering all points mentioned, I feel disposed to make the diagnosis of syringomyelia at least in a tentative way.

INTESTINAL OBSTRUCTION DUE TO A LEMON-PEEL; ENTEROTOMY; RECOVERY.

By W. T. Sharpless, M.D.,

WEST CHESTER, PA.

At 3 P.M., April 8, 1897, I was called to see a man, 20 years of age, who gave the following history:

The previous day he had eaten a hearty dinner of boiled cabbage, and a few hours later was suddenly seized by violent paroxysms of pain near the umbilicus, followed later by vomiting. This had continued for twenty-four hours.

Supposing the pain to be due to the indigestible food he had taken, he was ordered a full dose of castor oil, which was retained; but not acting upon the bowels, a second dose was taken four hours later, which was also without effect.

At 10 P.M., the symptoms continuing, obstruction was suspected, and he was removed to the Chester County Hospital, where I was on duty. During the night several high enemas were given with no effect.

The next morning the pain continued; the vomiting returned; the pulse became rapid, feeble, and irregular, and collapse appeared imminent. After consultation with my colleague, Dr. Elwood Patrick, an operation to find and, if possible, remove the cause of obstruction was decided upon, and performed twenty-four hours after I first saw him.

On opening the peritoneal cavity, the peritoneum covering the small intestine was found to be intensely injected, and a small amount of cloudy serum escaped through the abdominal opening. On introducing the hand it came almost immediately in contact with a mass inside the small intestine. The loop of gut containing it was brought outside and examined. It was in the upper part of the small intestine. The mass was three inches long and two in the greatest diameter. It was elastic and rather hard. It was somewhat movable within a short distance; but although there seemed to be no distinct stricture below it, the effort to move it on to the cecum required more force than appeared to be justifiable.

Consequently an incision two and a half inches in length was made in the gut opposite the insertion of the mesentery and the mass removed. As the patient had not spoken of having swallowed anything unusual, we were somewhat surprised to find it to be nearly the whole undigested skin of a large lemon. Both wounds were then closed in the usual manner. Fractional doses of calomel were begun the next day, and on the third day the bowels were freely moved by enema. Thereafter they continued to be moved naturally, and except for a stitch-abscess in the abdominal wound he had an uninterrupted recovery. He left the hospital May 21.

When asked, the next day, when he had swallowed the lemon, he seemed to have forgotten the circumstance, but finally recalled the fact that some time previous, while playing ball, he was sucking a lemon, and the ball coming his way and needing both hands to catch it, he stuffed the lemon in his mouth, which, without much difficulty, slipped down his throat. It was afterwards learned that this occurred two days before the symptoms of obstruction began.

Medical literature is full of reports of cases in which the most preposterous objects have been swallowed, either by accident or design; but it is rather singular with what unanimity the authorities agree that acute intestinal obstruction is not likely to result from these; the theory being that any object that can pass through the esophagus will pass through the intestinal canal. In this case, however, an object which was clearly the cause of intestinal obstruction was swallowed with no great difficulty. A pretty careful search through the literature induces the belief that such cases as that above described are not common. Ewald, in his article in the "Twentieth Century Practice of Medicine," says, "As a rule, foreign bodies become arrested in the intestine only when the lumen is narrowed at some place." While most text-books speak of gall-stones and enteroliths as possible causes of intestinal obstruction, many do not even mention foreign bodies taken through the mouth, or mention them only to say that they very

rarely cause obstruction. In Gross's "Surgery," however, a case is cited which is almost the exact counterpart of that I have described. He says, "In a case under the care of Dr. S. White, of Hudson, N. Y., early in the present century, a large teaspoon, swallowed in a paroxysm of delirium, was extracted in this way (enterotomy) from the ileum, and the man recovered in a few weeks." He does not say that it caused obstruction, though this is to be inferred from the context. Not the least interesting feature in the case I have reported is the apathy that would permit a man, after swallowing such a mass, to feel no concern as to the result.

A CASE OF LEFT-SIDED APPENDICITIS.

By Melvin M. Franklin, M.D.,

PHILADELPHIA,

Visiting Surgeon to the Charity Hospital, and to the Out-Patient Department of St. Joseph's Hospital.

While the diagnosis of inflammatory affections of the vermiform appendix is in the majority of instances comparatively simple, the case is different when the symptoms of the disease are not referred to the right iliac fossa.

The usual location of the caput coli is in the right iliac region, resting on the psoas magnus muscle, its apex projecting over the inner edge. The base of the appendix in such cases is directly under a point slightly external to the middle of a line drawn from the anterior superior spine of the ilium to the umbilicus, better known as McBurney's point.

When, however, as occasionally occurs, the cecum rests either on the iliacus muscle, or the major portion of it hangs over the pelvic brim, or is in its entirety in the true pelvis, the position of the base of the appendix is correspondingly changed.

The cecum during the first few months of fetal life lies in the umbilical region. At about the end of the second month it gradually descends until it reaches its normal position. In rare instances this fetal type persists.[1]

Until the pathology of peritonitis was better understood the term "idiopathic" was frequently applied to the inflammatory affections of the peritoneum; but we now know that the majority of cases, not due to traumatism or to pelvic trouble in the female, are secondary to appendicitis.

In the study of cases of appendicitis I find no two exactly similar. The majority of the affections of the abdominal viscera must be diagnosticated by exclusion rather than by direct symptoms. If this rule had not been followed in the case to be reported the diagnosis would have been impossible and the treatment empirical, as there were no symptoms whatever of disease in the right iliac fossa.

L. D., aged 8 years, female, was first seen by me on Tuesday, March 9. She had suffered severe pain in the abdomen, accompanied with nausea and vomiting, since the Sunday previous; the bowels had not been moved for forty-eight hours. Upon examination, I found the child lying on its back, legs flexed, abdominal muscles rigid. She complained of severe pain all over the abdomen, with no points of special tenderness; the temperature was 102° F.; pulse 140. An ice-bag was applied to the abdomen and solution of magnesium citrate together with one-tenth-grain doses of calomel were ordered. The patient was seen again that evening, and her condition was slightly improved. At 9 A.M., the following morning, the temperature was 103° F.; pulse 124. The bowels had moved freely during the night, large quantities of mucus were passed. The nausea by this time had ceased, and the pain in the abdomen lessened, but there was marked tenderness in the *left iliac region*, and the *left rectus muscle* was extremely rigid. The patient was sent to St. Joseph's Hospital and prepared for operation. On admission the temperature was 102° F.; pulse 130. This slight change in condition, together with the finding of a large quantity of albumin in the urine, caused the operation to be postponed until the following day. The next morning the patient's condition was worse, although the temperature had fallen to 101° F.; pulse 114. The bowels had moved several times involuntarily during the night. The pain in the left iliac region remained; there was none in any other portion of the abdomen. The left leg was markedly flexed.

After preparation, the abdominal parietes were incised on the right side, as is usual in operating for appendicitis. When the peritoneum was opened a quantity of foul-smelling serum escaped. It was sponged away, and an unsuccessful attempt was made to locate the cecum. A second incision was made at right angles to the first, running towards the umbilicus. With this increased wound the cecum was found well towards the median line; the appendix was lying di-

rectly across the abdominal cavity, bound to the omentum in the left iliac fossa. The adhesions were broken up, the appendix, together with the gangrenous omentum, ligated and cut away, and all portions of the abdominal cavity thoroughly flushed with normal salt solution. The wound was partially closed; a gauze drain being inserted in its lower angle.

The following morning her condition was markedly improved. In the afternoon the gauze drain was removed and the wound dressed. Rapid convalescence took place. The patient was discharged from the hospital cured.

Three additional cases have been reported by Fowler,[2] the first, a female, aged 35 years, who was attacked with colicky pains, which were distributed over the abdomen and finally referred to the epigastrium. Nausea and vomiting had followed the onset of the attack. The patient's temperature was 100° F.; pulse 80. There was somewhat diffuse and not very acute tenderness at the outer border of the left rectus muscle on a line with the umbilicus. Forty-eight hours later, being summoned in great haste, he found the patient in collapse. With the exception of a pain in the left hypochondrium she had been quite comfortable until a few hours before; her pulse was very weak, and she died without rallying seven hours later.

The autopsy revealed a perforated appendix on the left side. The caput coli was found attached by a very short mesocolon, lying almost directly upon the promontory of the sacrum. The appendix was three inches in length, and was curled upward and outward beneath the left rectus muscle. Considerable sero-purulent fluid and some fecal matter occupied the peritoneal cavity. Septic peritonitis was present.

Case II.—A. M. M., aged 19 years, was admitted to the St. Mary's Hospital with the following history: Seven days prior he developed severe abdominal pain followed by vomiting. A tumor had been made out, by the family physician, beneath the left rectus muscle, forty-eight hours before admission. Cathartics were administered, which caused the pain to become very violent.

He was prepared for operation, and the median abdominal incision was made. The peritoneal cavity was filled with sero-purulent fluid, besides three separate collections of sero-purulent matter, partly walled off by adhesions. The caput coli lay immediately beneath the umbilicus, the appendix lying behind the left rectus muscle. The patient's condition did not admit of an attempt to remove the appendix. Death took place shortly following the operation from shock and the pre-existing septic peritonitis. The autopsy showed a gangrenous appendix which had perforated, in addition to the conditions already described.

Case III.—J. B., male, aged 16 years. On the day preceding the patient suffered severe abdominal pain. Nausea and vomiting had followed the pain. The abdomen was markedly distended, with fulness rather more marked upon the *left side.* There was tenderness within an area of about three and a half inches in diameter, beneath the *left rectus muscle,* commencing at the umbilicus and extending directly downward. The temperature was 104° F.; pulse 124. A diagnosis of left-sided appendicitis was made, and the patient prepared for operation. Upon opening the abdominal cavity, a large amount of seropurulent fluid was found free in the peritoneum. An abscess cavity was found to the left of the median line occupying the locality of the dulness referred to. After thoroughly protecting the surrounding area with sterilized gauze, these cavities were explored with the fingertip, and were found to extend in all directions. The caput coli and the cecum were displaced from their normal positions in the right iliac region, being curled to the left and upward towards the umbilicus, and lost in a mass of adhesions. After thorough disinfection of the pus-cavities, gauze drains were inserted, and the abdominal wound sutured. The patient died on the third day from a continuance of the septic conditions which existed prior to the operation.

The autopsy revealed a gangrenous and perforated appendix.

[1] Medical News, Vol. LXIII, No. 22.

[2] Medical News, Vol. LXIII, No. 22.

Curious Example of Old-World Pharmacy.

A curious example of Old-World pharmacy is given, says a daily contemporary, in one of the letters which the Historical Manuscripts Commission has found in the valuable collection of documents preserved by the Marquis of Salisbury in Hatfield House. Towards the end of the sixteenth century Sir Henry Unton was sent on a mission to the French king in Paris, and there became ill, whereupon the physician of the royal house gave him a "confectio alcarmas, compounded of musk, amber, gold, pearl, and unicorn's horn, with pigeons applied to his side, and all other means that art could devise, sufficient to expel the strongest poison, and he be not bewitcht withal." It is almost needless to add that, after the administration of this extraordinary medicine, the ambassador promptly expired.—*British and Colonial Druggist.*

ALUMNI NOTES.

Necrology.

Dr. George W. Vogler died at Este's Park, Laramie County, Colorado, on August 26, 1897. Dr. Vogler was born in Philadelphia, December 7, 1855. After spending two years in the drug business he entered the office of the late Dr. Boisnot, as a student, and at the same time matriculated at the University of Pennsylvania, from which he was graduated in March, 1876. In June of the same year he received the degree of Doctor of Philosophy from the Auxiliary Department of Medicine. For two years succeeding his graduation he was resident physician in the German and Philadelphia Hospitals. In 1881 he was elected one of the consulting physicians at the German Hospital. He also served as chief of the Out-Door Department for Diseases of Women at the same institution for a number of years. Dr. Vogler was an active member of the Pennsylvania State and Philadelphia County Medical Societies; the Obstetrical, the Medico-Legal, and the Alumni Society of the University of Pennsylvania, the Association of Blockley ex-Resident Physicians and the Alumni Society of the Auxiliary Department of Medicine of the University of Pennsylvania, and also the Northern Medical Society.

Appointment.

Dr. Frank M. Tiffany, Class of '96, was appointed to the staff of the City Hospital of Stamford, Conn.

Constipation in Babies.

For constipation occurring in babies during the first year, and not relieved by a regulation of the diet, Carron de la Carrierie recommends a light massage of the abdomen with the palm of the hand well oiled. The movement should be made in a circle about the umbilicus, pressure being light and exerted especially in the right iliac region. Each *séance* should occupy not more than ten minutes, and should take place in the morning. For babies after the first year, massage may be given with the finger-tips over the course of the large intestine from right to left.—*Medical News.*

EDITORIAL.

RENAL TUBERCULOSIS.

The frequent development of tuberculosis of the kidney as a sequel to a primary focus of tuberculosis elsewhere in the body has long been recognized. Examination of the bodies of tuberculous subjects reveals renal involvement in 5 per cent. of adults, and in more than 15 per cent. of children. The existence, however, of a primary form of renal tuberculosis has only recently attracted the attention which it deserves. In many of the cases reported as primary there has been, no doubt, an obscure focus of infection which has been overlooked; but granting this to be true, it must be admitted that often the renal involvement is the most intense, furnishes the chief clinical evidences of infection, and at the autopsy is found to be the only active lesion apparent.

Two forms of tuberculosis of the kidney have been recognized,—the miliary and the caseous. The former is nearly always bilateral, is an acute process, and is generally unmistakably secondary to tuberculosis in some other part of the body. The caseous variety runs a chronic course; it usually begins as a unilateral affection, although the other organ is generally ultimately involved, and a primary focus may or may not be apparent in some other structure. While it sometimes happens that one form leads to the other, so that two varieties may be coexistent, it is nevertheless true that, as a rule, each variety retains its own characteristics throughout.

The pathogenesis of uro-genital tuberculosis, a form in which the kidneys, ureters, prostate, and testicles, in the male, and most rarely, the tubes and ovaries in the female, share in the tuberculous process, is still being discussed. While authorities formerly favored the view that in these cases the kidney was affected always secondarily by the ascent of the disease from the genital organs, recent investigators, such as Ziegler, Senator Dickinson, Roberts, and Hamill, are of the opinion that frequently the kidney is primarily the seat of disease, and that the genital organs are invaded by a descent of the process through the ureter.

The etiology of renal tuberculosis is that of tuberculosis in general. The disease is more frequent in males than in females. In the sixty

cases collected by Oppenheim, there were thirty-seven males and twenty-three females. Of forty-four cases occurring in the Middlesex Hospital, Morris found that there were twenty-seven males and seventeen females. In children the disparity in the sexes is still more apparent; in Hamill's fifty-five cases the sex was mentioned in forty-six, but of this number thirty-two were boys and fourteen were girls. Renal tuberculosis is rare in infancy, the large majority of cases occurring in adult life. In Facklam's series of 106 cases, 7 per cent. occurred between birth and the tenth year; 9.4 per cent. between the tenth and twentieth year; 37.6 per cent. between the thirtieth and fortieth year; 7 per cent. between the fortieth and fiftieth year; and 1.2 per cent. between the fiftieth and sixtieth year.

The symptoms are insidious in their onset, and probably are rarely manifest before the pelvis of the kidney becomes distinctly involved. In many instances the earliest symptoms are referable to the bladder, although the latter has not been invaded. Pyuria, dysuria, and frequent micturition, persisting without a local cause, should always excite suspicion. Pain is a common symptom; it may have the character of a continuous dull aching, confined to the lumbar region, especially of the affected side. In other cases, however, it appears in sharp paroxysms which radiate down the ureters and into the testicles, thus closely simulating attacks of nephritic colic. The pain is often associated with tenderness on deep pressure, but is not affected by position or jolting movements. Hematuria is often the initial symptom, and may be overlooked, on account of the absence of pain and the small quantity of blood that is passed. Slight hemorrhages, occurring early in the disease, are doubtless due to the congestion of the glomeruli, induced by the bacilli, while the later and more profuse discharges of blood are due to ulceration. In the early stages of the disease there is often polyuria, which may be more or less periodic. As a rule, the urine, when first voided, is turbid; but occasionally, especially during painful crises, it may be unusually clear and limpid. Unless there is extensive cystitis, the reaction of the urine is acid, and, as Osler suggests, this point may be of value in distinguishing between pyelonephritis and tuberculous nephritis. The urine is albuminous and the sediment may contain epithelial cells, pus, blood, connective tissue, elastic fibre, phosphate and oxalate crystals, cheesy particles, and *débris*. Tube-casts are rarely found. The amount of pus and albumin is very variable, depending upon the extent of the disease.

Fever may be absent, but often there is a slight evening rise, the temperature, ranging between 99° and 102° F. As the process advances constitutional symptoms appear, but extensive damage may be effected in the kidney before the advent of cachexia. According to

Neumann, one-fifth of the recorded cases of chronic renal tuberculosis revealed some enlargement of the affected organ on careful bimanual palpation. Enlargement has likewise been detected by percussion. After all, the absolute diagnosis of the condition must rest on the bacteriological examination of the urine. The presence of tubercle bacilli in the urine must be regarded as positive proof of the existence of tuberculosis in the genito-urinary tract. It is true that the smegma bacillus closely resembles the tubercle bacillus in its staining properties, but the latter may be recognized by its appearance in masses or S-shaped clusters, and by its greater resistance when stained to the bleaching effect of acidulated alcohol. In doubtful cases the diagnosis may be made clear by the injection of some of the urinary sediment into the peritoneal cavity of a guinea-pig. Ureteral catheterization in the female and cystoscopy in both sexes are measures that should not be neglected in obscure cases; they are particularly useful in determining whether the lesion is unilateral or bilateral. The differential diagnosis between calculous pyelitis and renal tuberculosis is often difficult. In the former, however, the pain is generally more severe, and is more apt to be affected by position and movement. Hematuria is more profuse and is often excited by exertion. Small calculi are frequently found in the urine, but tubercle bacilli are always absent. In the tuberculous disease constitutional symptoms, as a rule, appear earlier than in calculous pyelitis. Finally, an X-ray photograph may serve to detect the existence of a stone in the kidney.

The prognosis of renal tuberculosis is always grave. Without surgical intervention the disease is progressive, and usually terminates fatally within from a few months to two or three years. Spontaneous recovery is so rare that it need scarcely be considered. In many cases the treatment must of necessity be palliative. As regards surgical interference, the rule laid down by Senn in his recent work on genito-urinary tuberculosis is a safe one to follow: he says, "The operative treatment should be limited to cases in which the strength of the patient is sufficient to resist the immediate effects of the operation, and in which the renal disease either is primary, or, if secondary, the primary disease is not far advanced. The results of nephrectomy for renal tuberculosis are clearly set forth in a paper read by Bangs, of New York (*Boston Medical and Surgical Journal*, July 8, 1897), at the recent meeting of the American Association of Genito-Urinary Surgeons. The investigation deals with 112 cases, the majority of which have not been included in any previous report on the subject. The mortality from the operation in the 112 cases was about 19 per cent.; adding to this those that died within a few months after the operation, the mortality is increased to a little over 28 per cent. These figures

agree very closely with those of Pollet, who placed the mortality at 29 per cent. Thirty-three of the 112 cases—that is, about 30 per cent. —survived for a period varying from one to eight years after the operation; thirty-three were reported as "promising," and in nineteen there was no remote record of the patient.

In the future reports will no doubt present a far better showing for surgical treatment, for the early recognition of the disease, and a prompt resort to nephrectomy must necessarily lower the mortality.

Investigation of Infantile Scurvy.

The American Pediatric Society is making a collective investigation of infantile scurvy as occurring in North America, and earnestly requests the co-operation of physicians, through their sending of reports of cases, whether these have already been published or not. No case will be used in such a way as to interfere with its subsequent publication by the observer. Blanks containing questions to be filled out will be furnished on application to any one of the committee. A final printed report of the investigation will be sent to those furnishing cases.

Committee.—J. P. Crozer Griffith, M.D., *chairman*, 123 S. Eighteenth Street, Philadelphia; William D. Booker, M.D., 853 Park Avenue, Baltimore; Charles G. Jennings, M.D., 457 Jefferson Avenue, Detroit; Augustus Caillé, M.D., 753 Madison Avenue, New York City; J. Lovett Morse, M.D., 317 Marlboro Street, Boston.

Myxedema cured by the Use of Iodothyrin.

MM. M. P. Marié and M. Jolly cite a case of myxedema, of several years' duration, in a woman 54 years old, treated with iodothyrin, giving each day from three to four papers containing thirty centigrammes each, corresponding to .001 milligramme of iodine in organic combination, or to thirty centigrammes of fresh thyroid gland.

Though the patient presented a marked cardiac dyspnea and a little albuminuria, recovery was complete in six weeks.

In a case of goitre with phenomena of dyspnea and tachycardia, MM. Marié and Jolly obtained likewise with iodothyrin a notable amelioration.—*La Semaine Médicale*, No. 61, p. 489.

MEDICAL PROGRESS.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM PEPPER, M.D., LL.D., AND JAMES TYSON, M.D.,

ASSISTED BY

M. HOWARD FUSSELL, M.D., AND A. O. J. KELLY, M.D.

Diet in Typhoid Fever.

Frederick Shattuck (*Journal of the American Medical Association*, July 10, 1897) believes that considerable latitude of diet can be allowed patients suffering from typhoid fever. He does not mean an indiscriminate diet, but suggests the following:

(1) Milk, hot or cold, with or without salt, diluted with lime-water, soda-water, Apollinaris water, Vichy; peptonized milk, cream and water, milk with white of egg, slip, buttermilk, koumiss, matzoon, milk whey, milk with tea, coffee, and cocoa.

(2) Soups: beef, veal, chicken, tomato, potato, oyster, mutton, pea, bean, squash; carefully strained and thickened with rice (powdered), arrow-root, flour, milk or cream, egg, barley.

(3) Horlick's food, Mellin's food, malted milk, carnipeptone, bovinine, somatose.

(4) Beef-juice.

(5) Gruels: strained cornmeal, crackers, flour, barley-water, toast-water, albumin, water with lemon-juice.

(6) Ice-cream.

(7) Eggs, soft boiled or raw, eggnog.

(8) Finely minced lean meat, scraped beef; the soft part of raw oysters; soft crackers with milk or broth; soft puddings without raisins; soft toast without crust; blanc mange, wine-jelly, apple-sauce, and macaroni.

Treatment of Acute Peritonitis.

Senn (*Journal of the American Medical Association*, September 4, 1897), in the course of an exhaustive article upon the above subject, makes the following remarks:

A general discussion of medical treatment of peritonitis is out of place, but reference as to what a surgeon should do and what he should not do is pertinent. Stomach feeding must be limited to the administrations of liquid food and stimulants. Rectal enemata must be employed if nausea and vomiting are great. Distressing thirst can often be relieved by rectal enemata of warm water or by its hypodermic infusion. The therapeutics of cathartics and

opium are not definitely settled. Most practitioners administer cathartics as soon as symptoms begin, and the results have been much better since the method has come into general use. The use of cathartics is absolutely contra-indicated in peritonitis due to perforation. In such cases opium is useful and justifiable. Strychnine, camphor, and alcoholic stimulants should be used early. The application of ice or cold over the abdomen frequently succeeds in diminishing tympanites. If the heart's action is weak, hot applications are more agreeable to the patient and a better stimulant.

Chemistry of Colostrum Milk.

Woodward (*Publication*, No. 6, of Pepper's "Clinical Medicine"). Colostrum corpuscles are not always found in so-called colostrum milk; when they are present, the percentage of proteids is higher, as they disappear the proteid percentage drops. The color of colostrum is yellow; this color is especially marked in negroes' milk. The reaction of colostrum milk is alkaline. The specific gravity varies from 1024 to 1034. This variation is chiefly due to the variation in the amount of fat present. The fat varies from 2 per cent. to 5.3 per cent. The proteids vary from 1.64 per cent. to 2.22 per cent. The ash varies from 0.14 per cent. to 0.42 per cent. The higher percentages of ash in the earlier analyses are probably incorrect, a result due to imperfect ignition. The total solids vary from 10.18 per cent. to 13.65 per cent. The lactose varies from 5.6 per cent. to 7.4 per cent. An average colostrum milk contains 4 per cent. of fat, 1.9 per cent. of proteids, 6.5 per cent. of lactose, 0.2 per cent. of ash, making the total solids 12.5 per cent. and water 87.5 per cent. Cases II and V agree with the observations of Townsend, that the infants of multiparæ do not lose as much weight in the colostrum period of lactation as the children of primiparæ. Cases I, III, V, and VI show results which agree with those of the same observer,—that the shorter the period of colostrum milk, the smaller is the so-called physiological loss of weight in the new-born. Case I, in which the colostrum corpuscles were found, and Case IV, in which these corpuscles were not found, but in both of which high temperatures developed, show losses of infant weight of eight and twelve ounces respectively.

Aneurism of the Kidney.

Hahn (*Deutsche medicinische Wochenschrift*, No. 32, 1894). The patient, a woman, aged 49 years, had a tuberculous history. Three months before the operation reported, the patient, while going up-stairs, felt an uncomfortable sensation in the abdomen, and almost immediately noticed a swelling under the left margin of the ribs, which lasted ever since. After that time she had much digestive disturbance; she became pale and thin.

On examination, the patient was well nourished but pale. The chest was practically normal. The abdomen was prominent, especially in the left upper region. In this region there could be felt a mass the size of a child's head, smooth and elastic. The mass reached from the border of the ribs downward to a hand-breadth below the umbilicus, then backward, and was lost in the left lumbar region. The tumor was fixed in the left renal region, but was somewhat easily moved to and fro. Dulness over the tumor.

Pulsation could not be distinguished in the tumor, but with one hand over the tumor and the other in the lumbar region ballottement could be practised.

An attempt was made to examine the tumor posteriorly, but so much bleeding took place that the operation was continued through the abdomen, and both tumor and kidney removed.

The patient recovered.

During the operation, the kidney was found to be in about its normal position, but was seen to be united with a fluctuating turn at its lower pole, both tumor and kidney being enclosed in a common capsule.

On examination, after removal, it was found that the tumor was distinctly separated from the kidney, but they were both enclosed in the outer capsule of the kidney. The tumor was filled with blood and blood-clots.

One branch of the renal artery reached to the lower part of the kidney, and this artery was the seat of the aneurism.

Methylene Blue in Ataxia.

The following is taken from the *New York Medical Journal*, July 24, 1897:

In the *Journal des Praticiens* for July 3, we find an abstract of a recent communication to the Société de Biologie, by Dr. G. Lemoine, who states that he has made nine trials of methylene blue in the treatment of the pains of ataxia. In two cases there was no good result. Of the seven others, in five there was great diminution of the intensity and frequency of the pains, and in two there was complete and prolonged sedation. Those that yield most quickly, he says, are the lightning pains in the limbs and the girdle pains; those that are most obstinate are the visceral pains, especially those of the stomach and the rectum; those of the bladder subside rather readily. In the two cases in which the remedy failed altogether the pains were exclusively gastric. M. Lemoine says that the action of the drug is very prompt; the pain begins to subside in two or three hours after the urine has become colored blue. Another advantage is that the effect lasts for several days after the administration of the drug has been stopped, and sometimes for a number of weeks.

The Medicinal Prevention of Dental Decay.

Winkler (*New York Medical Journal*, July 31, 1897) believes that the primary cause of dental decay in the great majority of cases lies in a morbid state of the system which gives into the mouth perverted secretions. He divides the causes of dental caries into three classes. The first class consists of a morbid condition of the mucous glands of the mouth, which results in the excretion of an acrid corrosive fluid which excoriates the epithelium and corrodes the teeth, usually forming cavities around their necks.

Creosote in minute doses, frequently repeated, covering a period of from one to three weeks, is a specific for this condition. The cause of the second class of decay is a morbid state of the system, which renders the fluids of the mouth destructive to the teeth and propitious to the enormous multiplication of micro-organisms. The treatment of this class is not so well defined as the first, and remedies have to be chosen with some discrimination from a number which are employed. These are very simple,—the salts of mercury, potassium, and calcium; charcoal, creosote, etc., are the most potent, administered in doses so small that there is no general systemic disturbance from their use; yet their action upon the diseased conditions of the mouth is so pronounced as to be nearly specific. The third class of dental caries constitutes that form of decay

which is due not to a dyscrasia, but simply to acid-excreting bacteria, which are lodged in sheltering localities about the teeth. The only treatment for this class is operative interference.

Arrest of Hemorrhage in Hematophilia.

Bienwald (*Semaine Médicale*, May 5, 1897) has employed the following original method in a child, 10 years old, subject to hematophilia: Having failed to arrest hemorrhage from a small wound on the face by the application of perchloride of iron, he obtained some blood by aspiration from a healthy subject, and applied it to the wound. In a few minutes it coagulated, and the hemorrhage at once ceased. His explanation of the action of the remedy is that it supplies the ferment necessary for thrombosis in the small vessels. As affording this explanation some support, the *Lancet* calls attention to the success obtained by Dr. A. E. Wright in his experiments with the solution of fibrin ferment and chloride of calcium as a styptic.

THERAPEUTICS.

UNDER THE CHARGE OF

HORATIO C. WOOD, M.D., LL.D., AND ARTHUR A. STEVENS, M.D.

The Therapeutics of the Internal Secretions.

Kinnicutt (*American Journal of the Medical Sciences*, July, 1897) summarizes the results which have been obtained in various diseases from the use of internal secretions.

Myxedema.—Although the myxedematous symptoms are speedily removed by thyroid extract, a discontinuance of the treatment is certainly followed by a return of the symptoms at varying intervals, showing that the remedy does not cause the gland to resume its function, but exercises its influence by introducing into the economy something which it is presumably the function of the gland to supply. It has been proven that recovery can be effected after the disease has lasted as long a period as fourteen years, and that the maintenance of health can only be secured by continuous treatment during the lifetime of the patient. The requisite dosage for the removal of the myxedematous condition is variable. Equally good results are obtained from a single daily dose or a larger dose given at longer intervals. It has been found that this interval rarely can exceed a week.

Cretinism, Sporadic and Endemic.—It has been shown conclusively, first, that in sporadic cretinism the myxedematous symptoms can speedily be removed, thereby effecting a marvellous improvement in the frightful deformities; secondly, that the treatment is capable of developing the natural tendencies of the growth of the skeleton which were in abeyance, and that this latent capacity is in apparent inverse ratio to the age of the patient; thirdly, that a

striking improvement in the mental condition is effected, although occurring more slowly, and in a similar inverse ratio to the age of the patient, as observed in the skeleton-growth.

Goitre.—The maximum improvement is obtained in goitre of the simple hyperplastic form, although adenomatous nodules, in many instances, shrink in a striking manner. Complete disappearance of the tumor has rarely been noted. In explanation of the action of thyroid gland preparations in goitre, Bruns and Ewald, and others, have suggested the hypothesis of a primary toxemia of unknown origin, which evokes an increased functional activity of the gland, accompanied by hypertrophy. If the demand for thyroid products is supplied artificially, the gland retrogrades and atrophy results. Bauman's isolation of an iodine-bearing compound from the thyroid gland suggests an explanation of the value of iodine in the treatment of goitre.

Exophthalmic Goitre.—The preponderance of evidence indicates that the use of thyroid preparations in this affection is commonly attended with an aggravation of the symptoms. In certain cases, however, there has been no appreciable effect.

Insanity.—The use of thyroid extract in the treatment of various forms of insanity was originally based upon its undoubted power to increase ultimate cell-metabolism. Bruce, Babcock, Allen Starr, and Clouston have spoken favorably of the treatment in certain forms of insanity. Starr's extensive experience has led him to place the highest value upon the treatment in a form of mental disturbance occurring at the climacteric. He describes it as a mental depression, with anxiety and morbid fears, but without delusions or insomnia. Clouston says "that large doses of thyroid extract are of marked benefit in cases which threaten to become chronic, and that no case should be allowed to become incurable without a trial of this method of treatment." The favorable or unfavorable response to the treatment is accepted by several distinguished alienists as affording a basis for prognosis in the large class of cases occupying "the borderland" between curable and incurable states.

Obesity.—The number of cases treated by thyroid extract during the last four years is large, and the results in general have been favorable. It has been shown that under its influence the excretion of nitrogen is decidedly increased. Ewald states that the thyroid preparations influence metabolism *in toto*, without a selective action on the fats; and hence, that there is an albuminoid waste which should be compensated for by appropriate diet. In certain cases he found the treatment to be without effect, an experience which harmonizes with that of other observers.

Cutaneous Diseases.—The expectations originally entertained of the value of thyroid treatment in skin-diseases have not been fulfilled. In psoriasis a small measure of success has been obtained.

Addison's Disease.—Of forty-eight cases of Addison's disease treated with various adrenal preparations, tabulated by the author, six are reported as cured, twenty-two improved, eighteen unimproved, and in two instances an aggravation of the symptoms is stated to have occurred during treatment. Among the six recoveries, in one instance the patient has remained well for four months; in a second case the treatment was continued for four and a half months, the pigmentation disappeared and the patient was able to return to work. One year and a half after treatment he was still well. In a third case the patient was still well, twelve months after beginning treatment.

Exophthalmic Goitre.—The author has collected sixty-two cases of exoph-

thalmia treated by thymus gland. In thirty-six cases improvement in varying degrees occurred; in twenty-five there was no improvement, and in one there was an aggravation of symptoms. In a large proportion of the thirty-six cases which were benefited, there was an improvement in the subjective symptoms, and in many in the general condition. McKenzie, who has employed it in twenty cases, concludes that in most cases it has no effect upon the heart, goitre, or proptosis. At the same time he believes it to be a remedy of some value, improving the general condition, and in this way assisting towards recovery. He places it in the same class of remedies as cod-liver oil.

Goitre.—Mikulicz has reported thirty cases of goitre treated with thymus extracts. In twenty cases the goitre underwent a decided reduction. Among these were several cases which had only slightly improved under thyroid treatment. A complete cure in the anatomical sense was only obtained in two cases.

Acromegaly.—The author has collected thirteen cases of acromegaly treated with pituitary preparations. In seven cases varying degrees of improvement were noted. In five cases no effect was obtained; and in one case the patient was made worse by the treatment.

Potassium Permanganate in Opium-Poisoning.

Moor (*Therapeutische Wochenschrift*, No. 7, 1897) states that more than ninety instances of the successful use of potassium permanganate in opium-poisoning have been reported. He advises the administration of seven or eight grains in diluted solution to antidote the opium or morphine in the stomach, and this is to be followed by one grain in solution at frequent intervals, to antagonize the morphine subsequently eliminated by the gastric mucous membrane. The subcutaneous injection of a one-per-cent. solution is also recommended as a physiological antidote.

Contraindications to Sodium Salicylate in Rheumatism.

Jaccoud (*Lyon Médical*, March 14, 1897) believes that grave consequences may result from the employment of sodium salicylate in acute rheumatism with visceral localizations. It not only neither cures nor prevents them, but it may even favor their production. The drug should be suspended when delirium sets in before the diagnosis of cerebral rheumatism is established. This is necessary also if the delirium be of an alcoholic or hysterical nature, or result from any intoxication. In the cardio-pulmonary complications the same is also true. During the past ten years Jaccoud has observed that salicylates lower the fever and relieve the pain, but do not influence at all these localizations. By persisting in their employment, he believes that involvement of the myocardium is hastened.

A New Method of Disinfection of Large Rooms and Wards with Formalin.

Aronson (*Zeitschrift für Hygiene und infections Krankheiten*, June, 1897) describes a simple apparatus constructed by the chemical factory of Schering, by means of which sufficient quantities of formalin gas can be quickly developed for the disinfection of rooms and houses. The apparatus consists of a cylindrical

sheet-iron mantel, beneath which is a spirit-lamp with a suitable wick. In the upper part of the mantel hangs a vessel destined to contain the formalin pastils. The mode of using the apparatus is extremely simple and safe. The disinfector is placed upon a sheet of tin on the floor. For the disinfection of a medium-sized room about 100 formalin pastils are required, and these are placed in the container above the lamp. The lamp is filled with ordinary alcohol, about twice as many cubic centimetres of the fluid being employed as there are pastils to be vaporized. Windows, registers, and other openings are to be carefully closed before the lamp is lit, and the key-holes should be stuffed with paper. After the room is closed the apparatus is allowed to burn itself out. Aronson in a series of experiments, in which cultures of staphylococcus, streptococcus, bacillus pyocyaneus, typhoid and diphtheria bacilli, anthrax spores, and tubercle bacilli, prepared in various ways and distributed in different parts of a medium-sized room, and then subjected to formaldehyde vapor generated by the disinfector, found that bouillon-tubes, when subsequently inoculated with these cultures and placed in an incubator and observed for weeks, remained entirely free from bacterial growth.

Injections of Artificial Serum as a Means of preventing Death in Burns.

Tommasoli (*Rif. Méd.*, July 5, and *British Medical Journal*) recalls the fact that he sent to the Dermatological Congress, held in London in 1896, a note giving an account of trials made by him during a period of three years with artificial serum as a means of treatment in certain skin affections, which he believes to be due to chronic infective intoxication or autointoxication. In some cases—two of diffuse chronic eczema, one of scattered folliculitis, one of senile pruritus—a cure had been effected; a case of lichen planus, in which itching was very marked, was cured in thirty-six days. Since then the same treatment has been successful in cases of psoriasis and various pruriginous affections. Tommasoli now reports the results of the same method of treatment in two cases of very extensive burns. In one the patient was a woman, aged 60 years, who was burned severely over two-thirds of the front of the body, face, and limbs. Diarrhea and delirium had set in, and death seemed to be imminent, when Tommasoli determined to try the effect of injections of ordinary artificial serum composed of chloride of sodium and bicarbonate of sodium. The patient, who was burned on December 2, came under his care on December 4. On December 10 a first injection of 300 grammes of serum was given. The next day one litre was injected in two doses. On December 12 a litre was injected in one dose, the patient being kept meanwhile in a bath. On December 13 another litre was injected. On December 14 the patient died. The effect of the injections had, however, been distinctly good, the patient passing some hours of freedom from pain after each one. Encouraged by this result Tommasoli adopted the same method in the case of a man, aged 20 years, who was severely burned all over the right side of the front of the chest, the axilla, and the arm, as well as over the whole of the back from the shoulders to the buttocks and over all the right buttock. He was admitted on March 12, and on the 13th an injection of 250 grammes of serum was given. One of 300 grammes was given on the 14th, one of 400 grammes on the 15th. On the 16th the wounds were dressed with iodoform, but this had to be discontinued in a few days on account of its toxic effects. On the 17th an injection of 400

grammes was given, and on the 18th and every subsequent day till April 6 one of 500 grammes. From the first the patient, though prostrated by pain, held his own; then he improved rapidly, and on May 3, when he insisted on leaving the hospital, his general condition was excellent, and the wounds had a healthy appearance. Experiments on rabbits and dogs showed that injections of artificial serum have a very distinct effect in preserving life after severe burns.

OBSTETRICS.

UNDER THE CHARGE OF

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ASSISTED BY

W. A. NEWMAN DORLAND, M.D.

The Influence exerted upon the Infant by the Physical and Mental State of the Wet-Nurse.

In *L'Obstétrique* (1896, No. 4, p. 321) Budin records seven cases illustrative of the influence that the state of the wet-nurse may exert upon the nursing infant. In three cases the children, who were nursed by a woman suffering from pain, lost considerably in weight; in two cases nursed by a woman under the influence of anger the children suffered from diarrhea and also lost in weight; in two cases nursed by menstruating women the infants lost in weight and developed erythematous eruptions on the thighs.

Menstruation and Conception during Lactation.

Remfry (*Revue internationale de Médicine et de la Chirurgie*, 1896, No. 5) has found by an investigation among 900 nursing women that in 57 per cent. only did there occur an absolute amenorrhea. Menstruation was regular in 20 per cent., and irregular in 43 per cent. It was also common for conception to occur during lactation, 60 per cent. of the menstruating women conceiving. Among the non-menstruating women but 6 per cent. conceived during lactation.

Quadruplets.

E. T. Goode (*Lancet*, February 27, 1897) records an authentic case of multiple pregnancy. The woman was delivered of two children on January 22, 1897, without the aid of a medical attendant, her mother only being present. The after-birth not coming away, the next morning Goode was sent for. On his arrival, fifteen hours after the birth of the first two children, he found the woman considerably blanched from loss of blood, and on examination a bag of membranes presented. When this was ruptured a third child was delivered. After examining again a fourth child could be felt, and this was born in due course. There were three distinct placentæ and four cords. The presentations

were as follows: the first a vertex, the second a footling, and the last two vertices. The children were all still-born at between the fifth and sixth months. The commencement of labor was caused by the mother falling down. It was her third confinement. The patient made an uninterrupted recovery.

A New Method of Resuscitating Asphyxiated Infants.

G. Fieux (*Revue Obstétrique internationale*, February 21, 1897) proposes the ordinary stethoscope as a means of resuscitating still-born infants. Insufflating tubes, such as that of Ribemont-Dessaignes, are not always at hand, and, even when available, are not easy of introduction, but all medical men and midwives carry a stethoscope. Further, the stethoscope can be easily applied, and has been proved to give satisfactory results. The broad, bell-shaped end of the instrument is placed over the mouth and nose of the infant, fitting closely thereto like a mask. Through the other end, held in the left hand, the accoucheur blows air into the lungs, while he aids expiration by compressing the chest with the right hand after each insufflation. The head of the infant is kept in an extended position.

Vagitus Uterinus.

Brull (*Indian Medical Record*, February 1, 1897) records a case of intrauterine crying in a twin birth. After labor-pains had lasted two days the midwife in attendance had frequently introduced her hand into the uterus for the purpose of facilitating the extraction of the twin presenting by the breech. Brull, who had been summoned for assistance, on entering the room heard a crying that emanated from the uterus of the parturient woman. The crying was distinctly audible at a great distance, even in an adjoining room. The midwife mentioned that this had lasted, with long intervals between, for three hours. Extraction of an asphyxiated, but later resuscitated, infant was performed. The other twin, which was greatly under-developed, was dead when extracted. Brull declares the conditions for the possibility of vagitus uterinus to be: (1) The placental circulation must have ceased; (2) air must have entered the uterus; (3) the amniotic fluid must be absent, or so distributed in relation to the mouth and nose as not to interfere with breathing.

Precocious Motherhood.

W. M. Findley (*Medical News*, March 13, 1897) records the case of a girl, 12 years and 10 months of age, whom he attended in labor at the end of the seventh month. The girl had menstruated but twice prior to her marriage. She was fairly well developed for a child of her age. The babe presented by the breech and was asphyxiated during birth.

The Care of Premature Infants.

Schmidt (*Jahresbericht für Kinderheilkunde*, Band xliii, 3 u. 4) describes his treatment of an infant born seventy days before full term, weighing at birth 1490 grammes, and at the end of the first year 7000 grammes. At that time it was in perfect health and had already six teeth. The success of his treatment rested upon the two points of careful maintenance of warmth and feeding with

mother's milk. The heat of the child was preserved not only by warm flannel clothing, hot bottles, and a position of the basket near a warm stove, but by the avoidance of all unnecessary cooling in washing and in the changes of the temperature of the room. Until the child was old enough to nurse, the milk was drawn from the breast by an ordinary glass pump.

GYNECOLOGY.

UNDER THE CHARGE OF

CHARLES BINGHAM PENROSE, M.D.,

ASSISTED BY

H. D. BEYEA, M.D.

Celiotomy for Septic Peritonitis; Recovery.

Herzel (*Centralblatt für Gynäkologie*, No. 32, 1897) reports a case of septic peritonitis occurring three weeks after an instrumental delivery, in which he was able to effect a cure through celiotomy. The patient had severe pain in the lower abdomen, tympanites, and high fever, with marked prostration. The abdominal cavity was opened by an incision parellel to Poupart's ligament. No anesthetic was administered. The distended intestines were seen covered with a purulent pseudo-membrane. The right tube was the size of a child's arm. The abdominal cavity was irrigated with sterile water, and a Mikulicz drain was introduced. Convalescence began immediately, the temperature dropping to normal and the patient completely recovered.

Finney (*Johns Hopkins Hospital Bulletin*, July, 1897) reports the recovery of five cases of general suppurative peritonitis by the following method: A long incision was made through the linia alba, the intestines were removed from the abdominal cavity and wrapped in hot towels; the peritoneal cavity was wiped out subsequently, each fold of intestine was scrubbed with a portion of gauze wrung out of a hot salt solution. The intestines were then replaced, a gauze drain introduced, and the abdomen closed. Constant irrigation with warm salt solution during the scrubbing process aids the latter and lessens shock.

Regarding Myosarcoma of the Uterus: A Contribution to the Question of Microscopic Diagnosis of Tissue removed by the Curette.

Walther (*Zeitschrift für praktische Aerzte*, No. 2, 1897). In a woman, 55 years of age, the clinical diagnosis of an enlarged myomatous uterus, possibly complicated with carcinoma, was made. The microscopical examination of tissue, removed by the curette, showed the characteristics of sarcoma. The uterus was removed by abdominal hysterectomy. Four months later the disease returned, in the abdominal wall progressed rapidly, and five weeks later death resulted from general sarcomatosis. The writer refers to the very great

value and importance of microscopic examinations of tissues removed by the curette. He says it is usually difficult to determine between a beginning sarcoma of the uterus, tuberculosis, and interstitial endometritis. In tuberculosis typical giant cells and tubercle bacilli must be found. In interstitial endometritis the cells are smaller than those of sarcoma and have a relatively large nuclei.

The Results of Oophorectomy for Malignant Ovarian Tumors.

Kratzenstein (*Zeitschrift für Geburtshülfe und Gynäkologie*, Band xxxvi, Heft 1) has collected from the material of the Berlin University Clinic for Women one hundred cases of malignant ovarian tumors treated by oöphorectomy. The patients were operated upon between the years 1879 and 1892. They were primary carcinoma and sarcoma, and the malignant degenerations of benign ovarian growths, including fibrosarcoma. Twenty-eight per cent. died as a result of operation, and eleven per cent. from sepsis.

Of the seventy-two remaining, the malignant disease had returned in thirty-four, and caused death in thirty-two. The fibrosarcoma rarely returned. The writer doubts the malignancy of these latter growths. Of ten cases of solid carcinoma nine returned, of twenty cases of carcinomatous degeneration of a glandular cystoma, twelve returned, and of eighteen cases of carcinomatous degeneration of papillary cystoma, eleven returned.

Thirty-six per cent. of the cases have been operated upon from five and a half to fourteen and a half years, and are still in perfect health.

Of the thirty-four cases in which the disease returned, the return was a local one in twelve, in the lymph-glands in three, as a metastasis in nine, and as a combined local and metastatic return in eight.

The writer believes that in order to gain better results in the treatment of these tumors the danger of auto-inoculation should be carefully observed. Thus, the tumor should be punctured, surrounded by a large abdominal incision, adhesions should be carefully separated, and the tumor not torn during its removal. Further, the physician and the public should understand the importance of early diagnosis and early operation.

Experimental Data regarding the Influence of Castration upon the Uterine Mucous Membrane.

Cohan (*Centralblatt für Gynäkologie*, No. 32, 1897) records the results of his investigations to determine the changes in the uterine mucous membrane following castration. The investigations were made upon twenty rabbits. The mucous membrane and uterine wall were examined as early as twenty-four days, and as late as ten months, after the ovaries were removed. In order to compare the induced changes with those occurring normally at the menopause, he examined also the uteri removed from four elderly women.

He concludes that an inevitable result of removal of both ovaries is atrophy of the uterus. This atrophic change also involves the uterine mucous membrane,—the glands and superficial epithelium die as a result of the regressive changes, and the cell elements of the stroma tissue are modified into connective tissue, as occurs in the post-climacteric period. The processes seen in the uterine mucous membrane resemble those which precede the menopause. The pure form of senile atrophy, which is here observed, is not identical with endo-

metritis atrophicus. The cause of the changes found in the genitals after the removal of both ovaries is unknown. The ligature of the tubes and ovarian arteries has no influence. From an anatomical stand-point castration expresses itself as changes in the blood-vessels of the uterus.

Contribution to Douglasitis.

Hussenstein (*Gazette hebdomadaire de Médecine et de Chirurgie*, No. 92, 1896; *Centralblatt für Gynäkologie*, No. 32, 1897). Under this name the writer and his teacher, Condamin, describe an inflammation of the space of Douglas, which, after the subsidence of the inflammatory symptoms, is followed by contraction and shortening of the utero-sacral ligaments, and is characterized by inflammatory bands in Douglas's pouch. The adnexa in these cases are, as is proven by celiotomy, healthy. The condition very often resembles the parametritis posterior described by Schultze. The symptoms are agglutination of Douglas's pouch through more or less resisting adhesions. Retraction of the utero-sacral ligaments with retroposition of the cervix uteri and resultant anteflexion or retroflexion of the uterus. The uterine body may be mobile or immobile through adhesions in Douglas's pouch. The patient complains of a sensation of weight in the pelvis, shooting pains in the back and lower abdomen, which are increased in walking, standing, and when fatigued; vesical and rectal tenesmus, and usually dysmenorrhea and dyspareunia are present.

The treatment is hot-water douches, purgation (oil enema), glycerine tampons, and massage.

Dilatation of the Cervix Uteri as a Cure for Epilepsy.

Braithwaite (*Lancet*, July 31, 1897) reports a case of primary dysmenorrhea with epilepsy in a girl, 17 years of age, which was cured after dilatation of the cervix uteri. After six months menstruation continued painless and the epileptic attacks had not recurred.

PATHOLOGY.

UNDER THE CHARGE OF

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ASSISTED BY

DAVID RIESMAN, M.D.

Pathologic Changes in Dementia Paralytica.

Boedecker and Juliusburger (*Neurologisches Centralblatt*, September 1, 1897) report the clinical histories and anatomic findings in three cases of paralytic dementia. We reproduce, in condensed form, the pathologic changes discovered.

In the first case, a man of 45 years, without history of syphilis, alcoholism, or trauma, the pia was turbid, but easily peeled off, except in the region of the

right posterior central convolution, where it was adherent, and carried bits of the brain with it on removal. The cortex in this region had a grayish-red color, and was marked by a granular striation. The ependyma was distinctly granulated. Macroscopically, the spinal cord showed no changes. On microscopic examination of brain-sections the pia was found adherent and thickened over the right central gyrus; blood-vessels were abundant, but showed no thickening; pigment masses were present, especially about the vessels of the pial trabeculæ. Compared with the corresponding region of the left side, the right showed a great excess of blood-vessels. The stratification of the cells of the cortex was no longer visible; instead, a dense cell-accumulation was noted. The pyramidal cells were smaller and shrunken; many were devoid of processes, and stained intensely. Evidently, the changes consisted of an extraordinary increase of the interstitial tissue, with diminution in number of and degenerative changes in the ganglion-cells.

In addition, a degeneration of the pyramidal tract was, by means of Marchi's method, found to extend from the right central convolutions down into the lumbar region of the spinal cord.

The second patient, a painter, had had syphilis and lead-poisoning, and had also suffered a trauma. At the autopsy chronic leptomeningitis and granular ependymitis were found. The cortex of the right postero-central convolution and its transition into the paracentral lobule were diminished in thickness in comparison with the left side.

In the third patient, a bookkeeper, aged 54 years, the macroscopic lesions consisted in a granular ependymitis and atheroma of the basilar vessels. In both the second and the third cases, stained alcohol preparations of the brain cortex from the right motor area showed hyperplasia of the neuroglia and diminution of the ganglion-cells; but neither the vessels nor the pigment seemed to be increased.

The pyramidal tracts, in both cases, were the seat of degeneration, rendered visible by Marchi's stain.

The interesting features in these three cases are, first, the involvement of a localized cortical area; secondly, the degeneration of the pyramidal tracts, showing, as has already been asserted by others, that there are cases of paralytic dementia in which the primary cortical disease leads to secondary degeneration of the spinal cord. Finally, the coexistence of sensory and motor disturbances in the limbs tributary to the affected brain areas seems to corroborate Wernicke's view that every cortical region constitutes the central projection-field for the entire sensibility and motility of the corresponding part of the body. The old contention as to which is the primary process in paralytic dementia, the vascular changes or those in the nervous elements, is passed over by the authors. They think that the two are practically inseparable.

The Spinal Cord in Tetanus.

Walter K. Hunter (*British Medical Journal*, August 7, 1897) reports studies of three cases. In the cord of the first, a lad of 12 years, he found dilatation of the vessels, especially in the gray matter, and minute hemorrhages. There were no signs of round-cell infiltration. Regarding the ganglion-cells, the only change noticed (on comparing with normal cords) was that the plasma stained more diffusely, and showed none of the differentiation of its substance. The second patient had been successfully treated with antitoxin, but

developed exfoliative dermatitis, to which he succumbed in five days, fifteen days after the onset of the tetanic convulsions. No hemorrhages were found, and the hyperemia was scarcely more marked than in a normal cord. The ganglion-cells presented an appearance similar to that of the first case. The third case was a child of 4 years, that had died in spite of an injection of antitoxin. The bacillus tetani was cultivated from the wound. The cord, including the ganglion-cells, was normal. From these cases the author concludes that the hyperemia (noted in Cases I and II) is probably of the same nature as that seen in the other organs, and results from the spasm of the muscles of respiration. Its absence in the third case is difficult to explain; possibly the child died from syncope rather than from asphyxia. The changes in the ganglion-cells in two of the cases, the author brings in line with those experimentally produced by Marinesco in guinea-pigs, and looks upon them as early signs of degeneration, the result of the toxin, though it is possible that the toxin is a powerful stimulant, and that the degeneration is a consequence of over-use.

Spinal Cord Changes in Pernicious Anemia.

J. Mitchell Clarke (*British Medical Journal*, August 7, 1897) describes the cord-changes in two cases of pernicious anemia. In the first, a woman of 46 years, the changes consisted in fairly complete degeneration of the posterior columns, extending the whole length of the cord, and, in the lower dorsal and upper lumbar regions, in a small area of degeneration in the posterior part of the left lateral column. The internal posterior root-zone escaped, and this explained the preservation of the knee-jerk. With Golgi's stain a marked hyperplasia of the neuroglia in the degenerated areas was demonstrated.

In the second case, a laborer, aged 38 years, the gray matter of the cord was particularly affected,—the vessels were intensely injected and there were numerous microscopic hemorrhages, distributed chiefly about the central parts of the gray matter. Small areas of sclerosis were also noticed. Some of the nerve-cells of the anterior horns showed degenerative changes. The walls of the small vessels appeared thickened; the central canal was blocked. All the changes were most marked in the upper dorsal region.

BOOK NOTICES.

Reference-Book of Practical Therapeutics. By Various Authors. Edited by Frank P. Foster, M.D. Two volumes. New York: D. Appleton & Co., 1897.

In this day of multiplicity of books it is refreshing to review a work of usefulness and sterling merit.

Dr. Foster, the editor of the volumes under consideration, but adds to his already great fame in the minute care with which the volume is prepared.

A few of the points of excellence in this work are the following:

(1) The arrangement in dictionary form makes the various articles of the greatest value, by the ease with which they may be consulted. In addition to this arrangement there is a complete index both of the drugs considered and of diseases treated by drugs.

(2) The individual articles are excellently written. There is just enough chemistry and physiological action of the various drugs considered to make the article scientific, while these valuable parts do not overshadow the consideration of the practical application of remedies to disease, which, after all, is the portion of a book needed and desired by the practising physician.

(3) It is strictly up to date, as the last fifty pages are devoted to consideration of the latest contributions in the field.

About the only adverse criticism that can be made is the price. This we fear will deter its use in every office where it belongs. This, however, cannot be helped. We cannot have the good things of this life without paying for them.

It is not the habit of the writer to review a work with praise alone, but he finds absolutely nothing for adverse criticism in the books.

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MEDICAL MAGAZINE.

NOVEMBER, 1897.

A CASE OF PNEUMOTHORAX, WITH SKIAGRAPH.

By William Pepper, M.D.,

PHILADELPHIA,

Professor of Theory and Practice of Medicine and of Clinical Medicine, University of Pennsylvania.

T. F., aged 28 years, a laboring man, was admitted to the hospital on October 2, 1897, complaining of pain in the right side of the chest and dyspnea.

Family History.—The patient's father was killed in a coal-mine; the cause of his mother's death is unknown. There is no history of phthisis in the family.

The patient denies venereal disease and presents no evidence of syphilitic infection. He suffered the ordinary diseases of childhood, but had latterly been healthy, though he had a tendency to take cold during the last two or three years. During the last eleven months he has had a cough and muco-purulent expectoration. Occasionally the sputa were blood-tinged. He continued at work, exposing himself to cold, and frequently wetting his clothes to the skin. His cough grew worse, and he had night-sweats, but did not lose flesh. During the three weeks preceding his entrance to the hospital he was engaged at walling the banks of a creek, and was constantly wet.

On September 30 he came home from work feeling as well as usual, but early the next morning was attacked with pains in the right side, dyspnea, chills, and paroxysms of coughing. He was admitted to the hospital the next day.

Physical Examination.—Large, florid man, face flushed, breathing difficult, alæ of nose active. Chest: Respirations principally superior

and on left side. Apex-beat below nipple; slight fulness of right side; ample fremitus. On right, dulness below angle of scapula and impairment almost to apex posteriorly; anteriorly impaired; left side normal or hyperresonant. Cardiac area slightly enlarged; left border extending to nipple; right border to right side of sternum. Auscultation: Bronchial breathing with occasional crackling râles on right posteriorly; at extreme base sounds very weak; anteriorly, on right broncho-vesicular to bronchial breathing, and on left side exaggerated respiration with many liquid râles. Heart-sounds heavy and indistinct, second pulmonary much accented; no murmurs. Pulse fair in volume. Abdominal organs seemingly normal. Liver dulness encroached upon below by intestinal tympany.

October 3. Breathing very labored. Face much flushed. Pain less but continues. Expansion on right good, but right chest is enlarged; right (nipple level) nineteen and three-quarters inches; left, eighteen and one-half inches. Note over whole right chest is slightly dulled tympany. Fremitus is difficult to elicit on the right above, and is absent below. Breath-sounds on right are broncho-vesicular over the upper lobe. Below this there is distant, high-pitched, metallic blowing breathing, which is almost amphoric or cavernous in quality, accompanied by an occasional metallic râle. On tapping coins on chest distinct bell-tympany is heard through the chest. On the left the breath-sounds are exaggerated, the percussion note hyperresonant, the breath-sounds exaggerated and accompanied by many crackling râles. The first heart-sound is of fairly good quality, the second pulmonary much accentuated. Cardiac apex-beat is about three-quarters inch outside nipple line.

October 4. His signs are unchanged to-day. His dyspnea has increased and requires the sitting posture. Blood: Red blood-corpuscles, 3,720,000; white blood-corpuscles, 12,500; hemoglobin = 70 per cent. Urine normal.

October 5. His pain is now gone. The dyspnea persists, but is now less and not distressing when he is sitting up. The cough is still bad and only produces a thick muco-purulent expectoration with much difficulty. The right chest is everywhere tympanitic. There is some fremitus on the right, though less than on the left. The breath-sounds are even more cavernous and metallic than yesterday. The bell-tympany is marked. Liver dulness begins only at the edge of the ribs and reaches downward into the abdomen one and one-half inches. Cardiac apex-beat one inch outside nipple line. The heart-sounds are unchanged. The signs over the left lung remain unchanged, except for some increase of râles in the left axillary region. There is a good deal of recession of the supraclavicular spaces on res-

piration, and the lower intercostal spaces on the left recede pronouncedly with respiration, while there is little movement on the right, and the intercostal spaces scarcely change with respiratory effort. Right chest to-day measures at nipple level nineteen and one-half inches; left chest, eighteen and three-quarters inches.

Skiagraph was taken. With the fluoroscope it was plainly demonstrated that the ribs on the affected side did not move, and the right chest was much more translucent than the left.

October 6. Had a severe attack of dyspnea last evening and another this morning. Now breathing quietly but rapidly. Cough is less and he has no pain. There is no change in the signs over the lung.

Examination of sputum showed diplococci and tubercle bacilli.

October 7. He appears distinctly emaciated since admission and has constantly an anxious facial expression. The dyspnea is always severe, and occasionally becomes actively distressing. The right hand and forearm appear distinctly swollen to-day, but do not pit on pressure. Right arm rather more cyanotic than the left, but both are quite blue. The apex-beat is in same position. The chest measurements the same. The râles are distinctly less on the left side, and the resonance is everywhere good and even rather hyperresonant over the left lung. The signs on the right have not changed since noted.

Examination of blood: Red blood-corpuscles, 4,120,000; white blood-corpuscles, 18,750; hemoglobin = 70 per cent.

October 8. The tympany is less over the back, at the lower part of the lung; behind the note is distinctly duller, and the breathing, while still cavernous, is more distant. The breathing in front is still loud and cavernous, and there is tympany down to the edge of the ribs. The signs over the left lung are about the same. There are still numerous crackling râles and harsh, labored breathing. The apex-beat is in the same position.

Examination of blood: Hemoglobin, 80 per cent.; red cells, 3,665,000; white cells, 36,500; polymorphous cells, 88 per cent.; mononuclear and transitional cells, 6.8 per cent.; eosinophiles, 0.6 per cent.; lymphocytes, 4.8 per cent. Not a pure septic leucocytosis. Urine contains no abnormal constituents.

October 9. The tympany at the right base and the hollow breathing are less marked, and the latter sounds more distant, but is still readily heard. The fremitus on the right is weaker and expansion is less, but the side still expands. The apex-beat is in the same position, and the chest measurements remain the same. There are still numerous râles in the left chest, in the axillary and scapular regions.

Dyspnea is still pronounced but has lessened somewhat, and the cough is not so troublesome.

October 11. The chest signs remain about the same, except that measurement shows an increase of one-half inch in circumference of the right side. He has more dyspnea to-day.

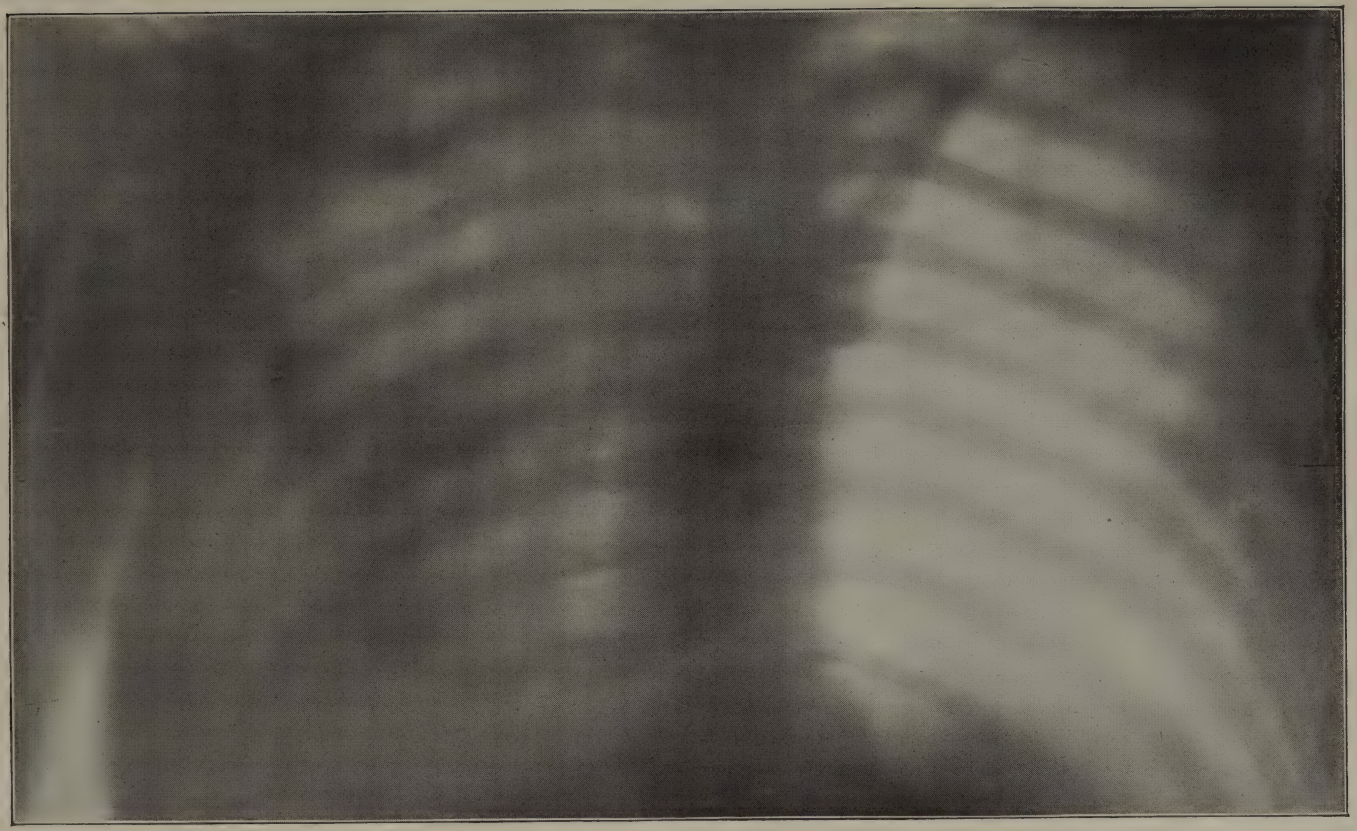
October 12. The signs of liquid effusion are rather more distinct to-day. Tympany is now distinctly decreased below the mid-scapula, and the note is dull, with some tympanitic quality still remaining. The breathing is more distant. There is still a little expansion. The râles on the left are profuse. The bell-tympany on the right is much less marked.

October 13. His condition is as noted yesterday, and there has been no change in the signs. His dyspnea is rather less.

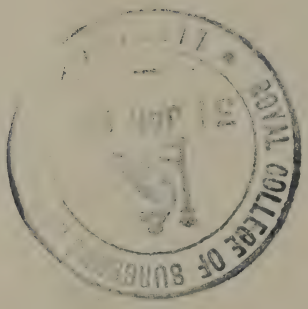
October 14. At 9 A.M. was somewhat cyanotic but not unusually dyspneic. Complained of being nauseated. Pulse became rapidly extremely weak, and he died a few moments after the first indication of any change in his condition, from circulatory failure. (See skiagraph.[1])

The physical examination of the case plainly indicated, after the first day or two, that the patient was suffering with pneumothorax, though there were difficulties in the way of estimating the amount of collapse of the affected lung. The right chest at no time was greatly increased in circumference, and the heart was only moderately displaced during several days. In addition, there was some expansion of the affected side and slight fremitus until a comparatively late period in the case. These facts, together with the history which pointed to long-standing pulmonary disease and pleurisy, and with the indistinct tympany obtained on percussion, allowed the suspicion that the pneumothorax might be partial or circumscribed by pleural adhesions. The further progress of the case did, it is true, make it clear that the lung was almost wholly collapsed and the entire pleural sac distended with air; but earlier in the case a reasonable doubt existed, and at that stage the skiagraph was extremely useful. The illustration shows how satisfactorily this demonstrated the intrathoracic condition. The collapsed lung is plainly visible, projecting slightly beyond the middle line from the dark shadow of the spinal column; on the opposite side the shadow of the heart is faintly marked, the contrast between the cardiac shadow and that of the left lung being rather less decided than in health, and indicating a state of engorgement of the pulmonary circulation of this side. Below, the upper limits of the diaphragm and liver are discernible, but less clearly than might have been the case if the focus had been directed at this part.

[1] The skiagraph was made by Charles Lester Leonard, M.D.



Skiagraph showing the collapsed lung projecting slightly beyond the middle line from the dark shadow of the spinal column.


ROYAL COLLEGE OF SURGEONS

The *autopsy* showed the following conditions in the thorax: The right pleural cavity was distended with gas. The lung was collapsed against the posterior wall of the chest. The mediastinum was dislocated. One-third of the chest cavity was filled with greenish-yellow, frothy, turbid liquid of not unpleasant odor. Diaphragmatic pleura was covered with a layer of lymph, rather thick in places. The costal pleura was similar. Right lung: Thick bands of lymph fastened the apex to the costal pleura. The lung was completely covered with a sheet of exudate. The apex contained a cavity about the size of a mandarin and lined with fibrous tissue. The cavity was empty. A small excavation was found in the base of the upper lobe and several others in the lower lobe, all of these containing thick yellowish pus. The walls of these were irregular and showed a few tubercles. The lung was carnified at apex and pleura greatly thickened. A fistulous communication was discussed between one of the smaller cavities and the pleural sac.

The left lung contained a number of tubercles and was deeply congested. The tubercles were most abundant just beneath the pleura, and the latter was bound down by thick adhesions posteriorly.

Horseflesh as Human Food.

"It is stated that horseflesh still appears to hold its own as an article of food with the poorer classes in Belgium. Recent statistics show that in Antwerp alone nearly 4000 horses were slaughtered last year for human consumption, and the number of shops dealing exclusively in horseflesh in the Belgian port exceeds thirty. Over 10,000 horses were imported during the year for conversion into meat, this number being largely in excess of the imports of cattle."—*British Medical Journal.*

FALSE NEUROMA OF THE EXTERNAL POPLITEAL NERVE.

By John K. Mitchell, M.D.,

PHILADELPHIA.

Mrs. J. W., aged 32 years, married twelve years, mother of one child, was brought by Dr. Orville Horwitz to Dr. Weir Mitchell for consultation. The patient has a general appearance of good health, and was in excellent condition, when, in September, 1894, after a walk of about an hour, she felt a sudden pain in the calf of the left leg. It is said, though somewhat doubtfully, that there was also some unusual cause of emotional excitement at this time. The calf was somewhat swollen, and considerable distress upon pressure was felt in it, the pain extending downward. She was never confined to bed, but was treated with faradic electricity at Clifton Springs, without improvement. In the course of the autumn the pain shifted to the front of the instep, then up to the knee, while the whole tibia became sensitive to pressure. There was no pain above the knee. The pain did not vary much, except upon exercise or standing upright. The whole region supplied by the external popliteal nerve became extremely sensitive all the way down to the foot, and she was finally obliged to cease walking altogether, each attempt causing an increase of pain and a swelling and hardening of the calf. She was always better after resting, but finding the need of exercise, essayed a bicycle, and found she could ride with no ill effect. The only other variation in the pain was that it was generally worse before a menstrual period, and became better as soon as the flow appeared.

It was concluded from the fact that standing upright produced pain, and that with the leg bent as in riding a bicycle there was no pain, that there must be some form of pressure brought about by movements in extension of the leg. A careful search was accordingly made along the course of the popliteal nerve, with the leg in every possible position. This resulted in the discovery of two small growths, apparently situated upon the external branch of the nerve immediately behind the knee and just within the outer ham-string tendons, which were supposed to be free neuromata.

An operation was evidently required, and it was thought possible that section might be necessary. Dr. Horwitz accordingly operated, and upon cutting down on the nerve discovered two tumors, one above the other, the upper one measuring about five millimetres in diameter, the lower one about three millimetres. To ascertain the precise charac-

ter and method of growth the nerve was examined above and below, and seemed to be slightly swollen in both directions, but did not appear congested or more red than common.

Upon making a longitudinal incision over the two growths, a quantity, unmeasurable, of an absolutely colorless, quite consistent, gelatinous material issued from them. This came from two sacs connected with each other, thus forming the false neuromata in question. Besides this, there appeared to be a prolongation of these cysts running up the nerve half an inch and down it for two inches. Pressure on the outside of the leg for two or three inches below the opening resulted in a discharge of more gelatinous substance through the wound in the nerve, the amount of which was roughly estimated as two-thirds of a teaspoonful. Of course the thought of section of the nerve was abandoned, as all the material had been squeezed out. The wound was dressed and healed rapidly.

At the time of the operation some few fibres of the nerve were cut, and this resulted in a slight amount of numbness on the external anterior aspect of the leg; otherwise there was no bad result and pain on walking has entirely disappeared.

Whether there will be a renewal of the difficulty or a reaccumulation of the gelatinous material, time alone can determine. The relief from pain, however, is, at present, absolute.

The ejected material was given to Dr. W. M. Coplin, of Jefferson Hospital, for study, and he reports the material gelatinous and containing delicate fusiform cells and the difficulty possibly of inflammatory origin. It was like the jelly-like matter found in ganglions at the wrist, and certainly presents an unusual type of false neuroma.

Dr. Coplin's full report is as follows:

"The specimen from the nerve of Mrs. J. W. has been examined and the following is the report:

"*Macroscopic.*—Clear, faintly straw-colored, gelatinous, semisolid material, which adheres with great tenacity to the side of the bottle and to the cork; when caught with platinum loop the material pulls out into long threads, which are slightly elastic. It is not soluble in water nor is it rendered opaque by alcohol, acetic or chromic acid.

"*Microscopic.*—A clear homogeneous matrix in which a few leucocytes and red blood-cells are found. There is no evidence of concentric layers or laminated fibres and but occasional cells, not identical with, but suggesting the matrix-cells of myxomatous tissue.

"On the whole, I should regard the material as probably a degenerated inflammatory exudate, although we cannot exclude the possibility of nerve-tissue undergoing such change.

"(Signed) W. M. L. Coplin."

THE PATHOLOGY OF TRICHINOSIS.—ORIGINAL OBSERVATIONS.

By Frank J. Thornbury, M.D.,

BUFFALO, N. Y.,

Late Supervising Microscopist, Abattoir No. 42, Bureau of Animal Industry, United States Department of Agriculture.

The number of hogs inspected at Abattoir No. 42, United States Department of Agriculture, under my supervision, for the presence of trichinæ during a period of eleven months, when this report was formulated, was 197,948. From these 400,000 slides were prepared.

This vast amount of material afforded valuable opportunity for a number of observations. The subject first to engage my attention was a study of the relative frequency of affection of the different parts of the carcass, from which specimens are taken according to the government system of inspection,—viz., the diaphragm, loin, and neck respectively,—and also to determine the relative extent of infection of these and other parts. One thousand and forty-three cases of trichinosis were investigated. Out of this number the three parts referred to were infected in 343 cases, in which the sections made from the diaphragm contained 5786 trichinæ; those made from the loin, 3484 trichinæ, and those from the neck, 1558. The total number of trichinæ in the sections made from these 343 cases being 10,828, an average of thirty-one trichinæ to a slide; or an average of sixteen in the sections made from the diaphragm, ten in those made from the loin, and four in the neck. The total number of cases in which two out of the three parts only were infected was 285. In this number the diaphragm sections contained 1297 trichinæ, the loin 484, the neck 425; the total number being 2026; an average of seven trichinæ in a single slide, or four in the diaphragm, one in the loin, and one in the neck. The number of cases in which one part only was infected in the three parts taken was 415. Of this number the diaphragm sections contained 652 trichinæ, the loin 76, and the neck 44,—a total of 792, or an average of almost two trichinæ to a slide. The diaphragm section contained $1\frac{237}{415}$ trichinæ on an average, the loin $\frac{1}{50}$, and the neck $\frac{1}{100}$ approximately.

The total number of trichinæ found in the sections made from 1043 cases was 13,806, an average of thirteen trichinæ in a slide. The number of times in which the diaphragm was infected in this series of

1043 cases was 799; the number of times in which the loin was infected was 582; and the neck, 476; the total number of times in which an individual part was infected being 1499.

The diaphragm was affected 258 times when two parts were invaded; and in 212 of the series of cases where the infection was so slight as to show lodgement of the parasite in only one part.

The loin was involved 197 times where two parts were infected, and 56 times where only one part was infected.

In the cases in which three parts were infected, the neck contained trichinæ in 342 (as indicated in the foregoing); where two parts were infected in 93, and where one part was infected in 54.

The total number of trichinæ found in the diaphragm sections in the 1043 cases enumerated was 1135,—or approximately eight in a slide. The total number contained in the loin sections was 4044,—an average of seven; the number which the neck contained in all the cases was 2827,—or four on an average. The average number of trichinæ in each slide where the three parts were infected was 31; where two parts were infected 7, and where one part was infected nearly 2. One-third of the aggregate of these corresponding with the above total average,—13.

The diaphragm, as these observations indicate, is therefore not only the most frequent seat of the lodgement of trichinæ in the body of the hog, but, as shown by the study of a large number of cases, it is also the most extensively diseased of the different parts. This is explained by its close proximity to the intestinal tract from which the trichinæ primarily migrate. It is, however, noteworthy, with reference to the psoas muscles, that while they are considerably less frequently infected than the diaphragm, when invaded, the number of trichinæ is relatively greater than in the diaphragm. This should cause us to be guarded in the use of this much preferred part (the tenderloin) as an article of diet. Where carcasses have been very extensively infected, trichinæ have also been found in large numbers in the hams, shoulders, and "sides," and in the intercostal and abdominal muscles.

Considerable variation has been observed in the number of trichinæ found upon different days, under systematic inspection, the disease seeming to be at times almost epidemic in herds; this is not surprising in view of its ready transmissibility. Where large numbers of trichinæ have been found upon certain days, the hogs inspected were usually from herds containing several hundred which had been kept closely aggregated together. In hogs from States immediately tributary to the Buffalo market,—New York, Ohio, Pennsylvania,—

where they are reared in comparatively smaller numbers, the disease appears to be less common, although here also exceptions occur, and I have found occasional evidences of local epidemics.

Age predisposes to infection, and it is a common observation with the taggers in charge of the cooling-room that old and poor swine are to be looked upon with suspicion, these being the ones to which the daily reports received from the laboratory most often pertain, and which are most likely to require tagging. (This is to insure their separation from pork which is to be stamped for export.)

However, very young hogs are sometimes trichinous. This would naturally be expected; so the "singers" prepared especially for the German market also occasionally require condemning. These hogs are usually less than a year old.

I now wish to refer to some peculiarities regarding the lodgement of the trichinæ in the muscles, their variations of position, irregularities of contour, and the subsequent changes—retrogressive in character—which the encapsulated parasite tends to undergo. Nature early tries to surround or encapsulate this foreign body, the same as any non-absorbable foreign substance introduced into the living tissues is disposed of. However, there appear to be a number of factors which modify encapsulation; these comprise the rapidity and the extent of the infection, probably also the varying activity of the parasite, and finally location,—*i.e.*, the muscles invaded and the number and extent of the contractions to which they are subject. Examination of about 1300 slides daily, with the aid of a corps of assistants, has afforded me ample opportunity of observing some of these variations of encapsulation, and they are not few in number. While this parasite often becomes enveloped separately, two, three, four, or six, and even seven trichinæ may be huddled together into a single capsule.

Professor James T. Whittaker, in the "American Text-Book of the Theory and Practice of Medicine," Vol. I, refers to four as being the maximum number found in a single cyst. In the above case, where seven were encapsulated together, each parasite was readily discernible, and the capsule was perfectly formed. This whole sample was highly infected, many other cysts present, containing two, three, and four trichinæ; the carcass of the hog being literally a wriggling mass of worms. Single and multiple encapsulations, non-encysted, calcified, pigmented, and degenerated trichinæ may all be associated in the same specimen. (See Fig. 2.)

This latter condition implies two or more distinct infections. One slide has been observed in which, although heavily infected, the tri-

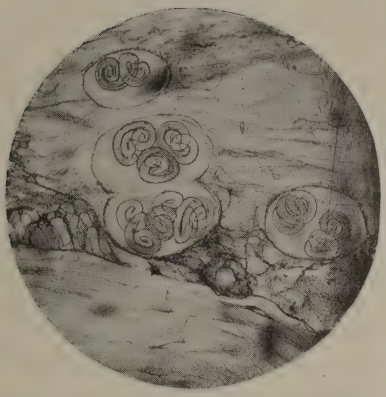


FIG. 1.—Exceptionally corrugated trichinæ.

FIG. 2.—Single and multiple encapsulations.

FIG. 3.—Calcified cyst with thickened walls, the poles extending for some distance along the muscle fibres.

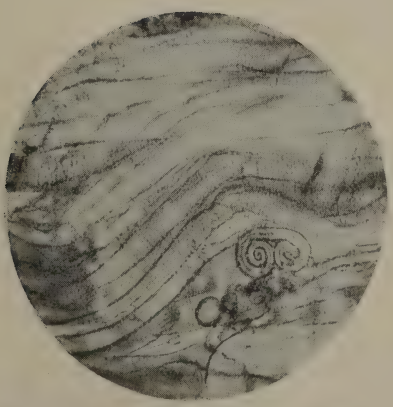


FIG. 4.—Unencapsulated trichinæ lying on top of the muscle fibres.

FIG. 5.—Escaped trichinæ in the water.

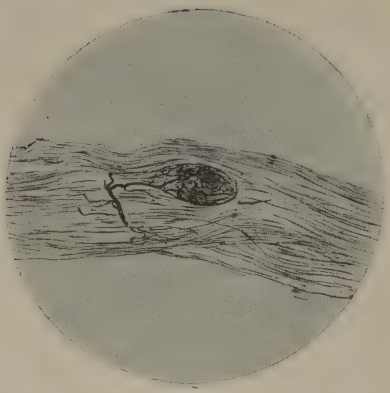


FIG. 6.—Showing circulation in a trichinal cyst, afferent and efferent blood-vessels.

FIG. 7.—Positions of live trichinæ.

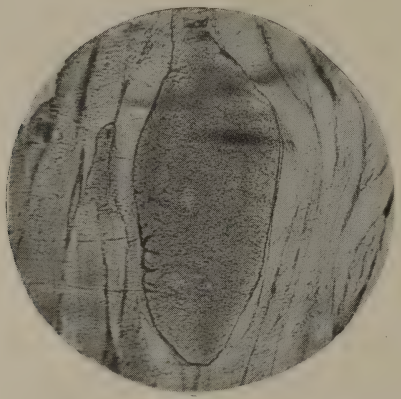


FIG. 8.—A large Meischerian sac.

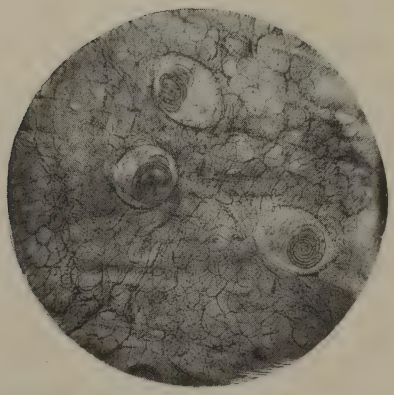


FIG. 9.—Representing the lodgement of trichinæ in adipose tissue.

FIG. 10.—Ruptured cyst, with escape of trichinæ and protoplasmic contents, the former advancing into the water.

chinæ were all encapsulated separately, giving to the specimen a very unique appearance. Each capsule was perfectly formed and distinct; all were very close together. Multiple encapsulation, as a rule, is suggestive of extensive infection.

The number of trichinæ found in a single slide presents the widest range of variation, corresponding with the difference in the extent of infection of the different parts of the body. There may be only one trichina present, there may be a thousand or more. One thousand and twenty-three were counted in one slide by an assistant examiner. Enumeration where so many trichinæ are present is difficult, although, by means of the corrugated stages employed on the microscopes in the Bureau of Animal Industry, this work is much facilitated, and the examination of the slide can be made with almost perfect thoroughness and accuracy, the entire field being covered systematically. Sometimes the only indication of infection is afforded by the lodgement of two or three old parasites in the muscles of the cervical region. In some specimens, where 350 or 400 trichinæ are shown in a slide, as many as 300 of these and upward may be lodged in the diaphragm muscle alone, only a few being present in the neck or loin; again, they may predominate in the loin by a vast majority, or even in the neck.

Assistant microscopists may be readily taught to recognize the different muscles under the microscope by the difference in size, direction, and translucency of the fibres, etc. More simple still is it to have them notice the location of the sections as they place them upon the slide for examination. There is no difficulty, as a rule, in discriminating macroscopically between the pieces of muscle taken from these three different parts of the body. Occasionally specimens will be seen where the infection is so heavy and the trichinæ so numerous as to almost preclude their being counted. Antemortem diagnosis should be possible in these cases by the rise of temperature, occasional evidences of the local paralysis, stupidity, etc. Some epidemics of trichinosis hominis have been traced to the use of the meat of such a "sick pig."

Trichinæ cysts, as a rule, are oval; they may be perfectly round or irregular. Sometimes the poles extend for a considerable distance along the muscle fibres, which are infiltrated and granular. (See Fig. 3.) All the intervening shades in contour are noticed. There are variations also in the thickness of the capsules, and distinct color zones are at times discernible. Often there is a very dark, thick, external zone, and an inner, light, granular zone, in which latter a small-sized trichina is contained. I have also observed a very thin and dark exterior capsule, with inner light zone containing the parasite.

The thickness of the capsule not infrequently varies in different

parts. The protoplasmic substance occupying the interior at times becomes the seat very early of retrogressive change. After a slide has been prepared for several days, the trichinæ contained assume increased distinctness, the capsules becoming clearer and brighter, and contrasting with the surrounding shrivelled muscle fibres. At this time may be noticed what appear as pigment spots through the interior of the coiled parasite, distinctly isolated; these are easily photographed after the mount is a couple of days old. Trichinæ may be obscured by an unusual darkness of the muscle, then there is greater danger of their being overlooked; such meat is also more difficult of inspection, being more fatiguing to the eyes. Here there is great need of the sections being very thin. There is a class of specimens where the muscle is very dark and in which the trichinæ have enhanced distinctness, standing out very beautifully and clearly within the translucent cells to which contrast is given by the dark background.

Occasionally a cyst, with its contained trichina, becomes detached from its moorings in preparing a specimen, and floats about in the water used in mounting. The trichinæ spirals usually lie flat within the cysts as seen under the field of the microscope, the whole outline of the parasite—the caudal extremity, the head, and the body—being discernible. Sometimes they all appear to be on edge, resembling somewhat coins placed side by side, as viewed from above. The impression is also the same as that given by dried blood. A condition may be noticed such as suggests section having been made transversely through the parasite after it was coiled. The latter condition must be seen to be appreciated, it being difficult to convey the impression in words. In one particular slide I observed a number of cysts containing trichinæ presenting this appearance. Some of the spirals evidently were divided.

A further peculiar condition that I have noticed was a diverticulum in a cyst—a subcompartment as it were—in which one end of the parasite was contained; the major part of the coil occupying the main capsule, the subcyst being attached to the latter by a narrow isthmus.

Trichinæ are by no means always found encapsulated in a specimen. In a case of recent invasion there may be no cysts present at all, the parasites being strewed on top of and among the muscle fibres, as though they had just crawled in. Here they will often be seen to move, uncoiling and recoiling under influence of the disturbance which has been offered them in cutting and mounting the specimen. Even after encapsulation has been perfected generally, and ample time has been afforded, an occasional parasite will be seen unencysted.

A parasite coiled at both ends and lying on top of a muscle fibre is shown in Fig. 4.

The long axis of the capsule usually corresponds with the longitudinal direction of the muscle fibres, but it may be situated transversely.

Trichinæ as found in the muscles present considerable variation as regards size; there are large and small trichinæ with intervening shades. Corresponding variations are likewise noticed in the size of the capsules. It would seem that the parasite produces an unusual amount of chemical irritation at times, probably also it has unusual motility. The latter leads to a large amount of cellular proliferation, and consequently the formation of a larger cyst. One case I have observed in which there was no capsule proper, but a very large, irregular, granular area surrounding the parasite. In some specimens there is an absolute predominance of small trichinæ and small cysts.

After trichinæ have been lodged in the muscles for a considerable time their tendency is to undergo certain retrogressive changes. This pertains particularly to calcification or deposition within the capsule of lime salts, which seemingly is not incompatible with the future life of the parasite. It is stated that trichinæ may live for twenty years in a calcified cyst; this may be true, but it is equally certain that they usually become inert in a much shorter time. The effect of calcification of the cyst upon the future life of the parasite invites further study.

The time of the beginning of calcification seems to vary considerably. In the same slide there may be recently encapsulated trichinæ and those non-encysted; we may also have, as stated, an extreme condition of disintegration and a partial or even absolute loss of identity.

We may assume that the character of the lodgement of the parasite in the muscle fibre and the drawing of the sarcolemma around itself, which is the mode of formation, has an important determining influence. A great amount of motility in individual instances will naturally cause unusual irritation and a large degree of inflammation, with cellular proliferation and the other changes which characterize it. Here, then, we may have earlier tendencies towards retrogressive change than when encapsulation takes place in the usual manner. Sometimes a large number of trichinæ aggregate themselves together, forming a mass which is surrounded by a very thick capsule that is not apt to be ruptured in mounting. On account of the thickness of the cell wall, here only the faint outlines of the coils can be seen. The above masses are usually of large contour and often irregular in outline, but may be circular or oval. They must be differentiated from the cysticercus cellulosæ, large tubercles and extensive Meischerian

sacs, etc. The latter are sausage-shaped psorosperms, which may usually be distinguished by the fact that they are traversed by transverse lines, and discharge, upon section, minute kidney-shaped objects, which may undergo change of form. Again to be considered are the crystalline objects found in muscle, described by Virchow as the guanine gout; these dissolve on the addition of hydrochloric acid, leaving the muscle unaffected.

What I believe to be the remnants of miliary abscesses are also sometimes seen in pork; they appear as irregular, black, elongated masses within a dark pigmented capsule. These are at times with difficulty differentiated from the degenerated trichinæ cysts in which the contents have been transformed into exsiccated *débris.*

Such areas are quite common. They have never been found associated with ordinary trichinæ, while frequently disintegrated, calcified, and pigmented trichinæ cysts are.

Again, we may have a translucent zone surrounding a black, irregular, central mass, *in which the outlines of coils are faintly discernible.* These later areas are, as a rule, distinctly circular, and several of them may be present in a single slide. I am inclined to look upon these as disintegrated trichinæ cysts, which are harmless, but a specimen containing them (they are often very few in number, not more than one, two, or perhaps three being present in a slide) is always to be looked upon with suspicion, because live and active trichinæ may be associated with degenerated ones. While perhaps not present in the slide immediately under observation a second one might reveal them. It is therefore the part of wisdom to give the case the benefit of the doubt, and condemn the carcass, since the latter can be rendered safer by a thorough cooking. Such cases as these are the ones which give rise to trouble, and often place the American inspection in bad light with the Germans, who reinspect every pound of imported pork before it is consumed in their country. The occasional finding of trichinæ in pork which has passed the American inspection has been recorded. Of course this accident might be the result of carelessness, as in a number of abattoirs under the domain of the United States Department of Agriculture there is no chief or supervising microscopist, the entire inspection being intrusted to a set of more or less inexperienced girls.

If we could be sure that all of the trichinæ present throughout a given carcass were of the degenerated type outlined above, incapable of infection, then the flesh could safely be used for human food, although it might not be altogether wholesome. The thought, too, of using meat which has at some remote time been the seat of parasitic invasion would not be agreeable to the ordinary American individual,

although in Germany it is stated that condemned trichinous hogs are cooked thoroughly at the government abattoirs, and placed upon the market as condemned meat, safe for human food. It is sold at a low price and used by the peasantry. In Germany all hogs are inspected. Each farmer brings his pork to the public abattoir where it is inspected. He pays a nominal fee for the service. If the carcass is found to be trichinous, it is tagged, and he is reimbursed for it. The dreadful epidemics of trichinosis (mistaken at times for typhoid fever) have led the authorities of that country to adopt such rigid precautions. With us, where less raw pork is consumed, the dangers from trichinosis are much less, although cases undoubtedly often occur that are overlooked. I will later cite two cases in my own experience, and refer to seven additional ones that I think have never been put on record. Some of our text-books state that 2 per cent. of all swine have trichinæ, and that they occur in 2 per cent. of all cadavers in the dissecting-room. In one series of twenty-one cadavers, which I myself examined, three were trichinous,—14 per cent.

Concerning the frequency of trichinosis in swine, my examination of over 100,000 showed less than 1 per cent. to be infected. Probably in the western parts of our country the percentage sometimes runs higher; occasionally every hog in a whole herd is trichinous. Sometimes every one may be exempt.

I have occasionally noticed in sections from the neck old trichinous cysts, in which the parasite forms a figure-of-eight, the capsule narrowed and shrivelled, being filled with black pigment. Less frequently stray, degenerated, and pigmented trichinous cysts are found in the diaphragm. Mild infection is indicated in each instance. Trichinæ are observed in a variety of positions (see Fig. 7), a perfect spiral is by no means always formed. One digression observed was the representation of the interrogation point without the lower dot. They may be S-shaped, form double curves in opposite directions, be perfectly straight, or represent other irregularities, in some of which it is difficult to state whether one or more trichinæ are entangled. Where the specimen has been recently invaded and the trichinæ are not encysted, they may lie parallel with the muscle fibres, and if the fibre be thin, with a piece broken off, we have a condition which is with difficulty differentiated from a straightened-out parasite. This kind of confusion is most apt to occur at the edge of the specimen. I have observed a slide in which the worm was perfectly straight, and apparently driven into the margin of the section in a manner which gave the impression of a small pin having been introduced.

Very recently a specimen was encountered in which it was absolutely impossible to determine by the ordinary microscopic evidence

whether trichinæ existed, or whether I had to deal with a thin muscle fibre in a spiral position. Simply heating the specimen will clear up such cases. If the object under consideration be a trichina, it will take on very lively motion under the influence of higher temperature, to which it is not accustomed.

"Wandering trichinæ" is an expression which has come into vogue in our local laboratory, and implies the presence of the parasite outside of the muscle, in the water used in mounting. (See Fig. 5.) Here they are usually found *tightly coiled*, and they may be seen to uncoil, straighten out completely, and migrate farther. Finally they take a position of rest, coiled remote from, or close to, the muscle, as may happen.

It is not the tendency of trichinæ, as far as my observation goes, to migrate to a very large extent under the microscope. It would be purely hypothetical to assume whether this statement is applicable to trichinæ generally outside of the animal body. The motion which they are seen to possess is vermicular, usually sluggish, but sometimes very active. A coiled parasite in the water, outside of the muscle fibres, is often carried some distance by gravity without the manifestation of any inherent motion whatever.

Embedded in the muscle, trichinæ are seldom seen to migrate, although motility of *unencapsulated* parasites is here exceptionally observed. As an extreme rarity (corresponding, perhaps, with the relative frequency of seven trichinæ in a cyst), the parasite is seen *to move within its capsule*. This latter phenomenon I have actually studied in one out of the 400,000 slides prepared. The parasite coiled and uncoiled artistically within its nest, although but slightly. Another novel performance which I one day noticed was the attempt of the parasite to leave its cell. The latter was ruptured slightly at one end and the parasite would advance from within the walls, then recede and recoil.

The position finally assumed was that of a partial spiral at one end, the other end of the parasite being thrown across itself.

Rupture of newly formed capsules in mounting a specimen is not an infrequent occurrence (see Fig. 10); then a number of trichinæ will be seen crawling about when the preparation is examined under the microscope. Every parasite in the sections made may be moving and every cyst seen empty. The trichinæ will be lying with their extruded contents close to or removed some distance from their former abode, according to the degree of pressure applied by the compressor and the thinness of the sections made. Empty cysts in the field—which are themselves as characteristic as the trichinæ—always indicate the presence, somewhere in the vicinity, of parasites. Very rarely the latter will be lost. The granular, protoplasmic contents

may be distributed around the trichinæ or lying near to or hanging from the cyst, if it is without the latter. Usually the greater portion of this highly vascularized substance is within the cyst and *entirely intact* from all outward appearances. But necessarily a rupture in it at some part must have occurred, together with the wall, to permit the escape of the parasite, although the wall too, as it presents in profile, shows no evidence of having been broken, yet the parasite lies on the outside. Illustration No. 6 will serve to indicate how highly vascularized trichinæ cysts become soon after their formation. The afferent and efferent blood-channels are plainly visible.

The macroscopic evidences of infection referred to are not such as would be likely to be detected by an ordinary layman or butcher, and even the experienced observer may at times be left in doubt. The microscope is the most prompt and available aid in detection. There is usually not much difference in color, although it is thought by some that trichinous meat is darker. Decided evidence of inflammation and fatty infiltration I have at times observed. It seems rather surprising that greater pathological alterations do not take place in consequence of such marked mechanical violence and chemical irritation. In the vast majority of cases no changes whatever, outside of the capsule, are to be noticed in the muscle by the ordinary routine methods of examination, the muscle fibres up to the very outer wall of the capsule appearing perfectly normal, with the exception of the rare instances to which I have alluded, where there is extensive degeneration extending for some distance along the fibres from the ends of the capsule. This latter change is usually characterized by early tendency towards calcareous deposition.

The macroscopic evidences of trichinæ, to which I have referred, are probably best seen in the psoas muscles, by reason of the greater clearness of their fibres; but they are readily detectable in the diaphragm and elsewhere. Haller's cut representing calcified trichinæ cysts unmagnified corresponds in some measure with the description which I have given; the latter, however, are probably of *recent* invasion, as old, calcified cysts would not rupture so easily.

In the class of cases referred to, in which the trichinæ are to be found extracapsular, no evidences of calcification or pigmentation are ever presented. The time essential for their completion has not elapsed. These are the cases in which a straightened-out trichina and a part of a muscle fibre may be confounded, but owing to the large number of parasites in other parts of the slide in various positions, there will be no difficulty in rendering an opinion. Were but a single trichina presented (which would be a great rarity), the heat test would

be differential, the fibre remaining motionless while the parasite takes on active contortions, exemplifying every imaginable posture.

Ex-encapsulated trichinæ may be massed together, like a nest of earthworms. In one slide out of the 400,000 trichinæ were so numerous as to prevent their being enumerated. There was very little muscle structure visible; the condition corresponding with what might be likened to a pure culture of the parasite. Such meat, if consumed underdone, would necessarily be very rapidly fatal. Fifty thousand trichinæ and upward may be present in a single ounce of pork, and it would take but a very small quantity from almost any part of such a carcass to contaminate a large amount of sausage. In the interest of humanity the strictest legislation should prevail governing the disposal of infected carcasses.

White rats, which I have fed upon pork infested, as here stated, almost invariably died in from forty-eight to seventy-two hours. The symptoms manifested are those of profound systemic poisoning. The most careful search of the muscles will fail to reveal the presence of a single trichina; they have not had time to migrate from the intestinal canal, the death being attributable to toxemia.

A very interesting picture is afforded by heating a slide, prepared in the manner outlined, from a specimen of pork showing recent invasion. This is done most conveniently by simply placing the slide upon the radiator for a few minutes. Then the slow, vermicular motion, which may have been noticed in some of the parasites, becomes substituted by a very active wriggling motion in nearly all of them. They have been seriously irritated, as shown by their endeavor to migrate. They undergo all sorts of changes of position rapidly, showing complex movements and contortions. If the heating be increased, —raising it to 130° or 150° F.,—they give evidence of intense agony by their action, undergoing more rapid and violent contortions in the accession to the climax of their migrating propensities, then stopping suddenly and becoming quiescent, usually uncoiled. The calamitous parasite is dead.

A peculiarity which I once observed was a stray parasite moving its head alternately to the right and left as if exploring the way preparatory to migrating. I have seen other novelties in my study of the trichinæ; every conceivable attitude and posture common to other worms and associated with the art of locomotion may be shown by them. Their usual mode of migrating is by successively uncoiling and recoiling; they are not invariably coiled in a position of rest, although their natural tendency in that condition is to form a spiral. These worms have phenomenal boring power, which is commonly known; and it is by reason of this property that they are able to advance from

the intestine to the remotest parts of the body, being stayed in their advances only by bony or tendinous structure. The latter fact accounts for their greater abundance often near the tendinous insertion of a muscle. They keep on advancing until they can go no farther, and hence accumulate in the latter place. Every muscle in the voluntary or involuntary system—even the heart itself—may be invaded. The motion which I have been describing is simply the result, in most instances, of the trichinæ being disturbed from their positions of rest, and is not that which they manifest in boring through the body. The former is also not a motion that is long continuous, but it may be perpetuated for a considerable time by continuance of caloric influence. Jarring or shaking a slide seems to have little or no effect upon them, while the effect of heat is conspicuously prompt in rousing them to activity. It is fortunate for pork-eaters that this parasite is so sensitive to heat.

Proportionately the trichinæ out of their nests often appear remarkably large; here, too, difference in the size of them becomes most noticeable. Small trichinæ in small cysts and large trichinæ in large cysts have already been referred to. Occasionally parasites are seen straightened out, and appear of enormous length, resembling veritable angle-worms under the two-thirds objective.

In heating slides to elicit motion care must be taken not to overheat them, otherwise the trichinæ are killed and fail to move when magnified. If the limit of tolerance (about 150° F.) be not overreached, the parasites cease their contortions after a time, showing finally but slight motion and then becoming entirely quiescent, though still alive.

The following method of liberating trichinæ from their capsules, artificially, I have employed successfully:

A small piece of infected meat is taken from, preferably, the loin or diaphragm, and this is placed in peptonized water containing hydrochloric acid, each ingredient being added in the proportions found naturally in the gastric juice. The specimen is allowed to remain in the fluid, placed in the thermostat at 37.5° C. for about thirty-six hours. (If a stronger solution is employed less time is required.) At the end of this time the muscle, which should be occasionally agitated in the fluid, has become digested, the capsules are dissolved away, and the trichinæ are liberated from their habitat. They gravitate in the fluid containing them and may be collected in a few drops in the bottom of the glass containing the mixture, which should be conical, a pipette being used to transfer the sediment to the glass slide on which the examination is made. If the slide be taken directly from water, the temperature of which is about 140° F., the trichinæ will be seen in very

lively motion. The latter effect may also be brought about by placing the fluid warmed upon the slide.

Differentiation.—As a rule, the trichina spiralis will not be confounded with anything else, although cases are encountered in the government abattoirs which will baffle the most careful observer. The position of examiner entails some degree of responsibility. First, the carcass of a hog should not be condemned which is not really trichinous; secondly, there is danger in allowing a suspicious one to pass on account of its being offered for export. There is a variety of conditions occurring in pork which may simulate trichinæ cysts. The first to which I will refer are peculiar aggregations, sometimes seen in the adipose tissue, in which the contour of trichinæ cysts is exemplified; these may also have in their interior circular and irregular lines much resembling those which represent at times the pork-worm in a state of indistinctness. This condition seems to be the result of the very close apposition of a number of fat globules, so that their margins seem to blend. Were it not for the fact that we sometimes have trichinæ invading the adipose tissue these masses could be more readily eliminated. A recent epidemic of trichinosis in Belgium, consisting of thirty-nine cases, thirteen of which proved fatal, was traced to the use of lard.

Meischerian sacs (see Fig. 8), previously mentioned, are often encountered. Sometimes the muscles of the hog are quite filled with them. Further to be considered are miliary tubercles, the remains of small abscesses, simple cysts, and cysticercus cellulosæ, calcified and degenerated. The Meischerian sacs also undergo calcareous change at times. We may have appearing in the field a divided artery with a dried blood-clot in the interior corrugated.

It might seem that the chances for confusion in these cases are more imaginary than real, but when we recall what I have said about the retrogressive changes in trichinæ cysts, and the distance they sometimes depart from their normal condition, it will be better appreciated that we may and do have difficulty at times in deciding as to their presence.

It is difficult to understand why in the same slide we should have calcification, pigmentation, and trichinæ which are not encysted at all. Most likely we have to deal here with separate infections, as stated. Such extreme differences are not easily accounted for on other grounds. If the case represents but a single infection, then the question arises what causes such a great discrepancy.

With reference to the possibility of the transmission of trichinæ through lard, this is little apt to occur in our country, where, in the enormous steam tanks used in the abattoirs, everything that goes to

compose the lard is first subjected to a very high steam pressure, reaching 300° or 400° F. The epidemic which occurred in Belgium was probably due to leaf lard. This, I understand, is sometimes used by the peasants to serve as a substitute for butter.

I have often observed the presence of trichinæ in adipose tissue; in fact, have had them photographed in this location. (See Fig. 9.) Here the capsule, if formed, has usually thin walls; it may be of any shape; it is sometimes square, though usually round. This condition often occurs in the diaphragm, which is usually the seat of more or less adipose tissue.

The "tenderloin," as known, is very lean, but we may have, as cited, fatty infiltration of the muscle, the trichinæ being found between the fibres. Perhaps but a single cyst will present in the slide; a granular protoplasmic substance occupying the interior of the capsule, which contains one or more trichinæ. In the loin, on account of the absolute absence of fat, as a rule, better formed capsules are more common, muscle fibre seeming to be essential to perfection of the process. Often the detection of a coil in the adipose tissue is facilitated by the use of the narrow blender.

Trichinosis Hominis.

Two cases of trichinosis in the human subject were brought to my notice by Dr. J. C. Thompson, of this city, about a year ago. A lady and her maid, both of whom had been in the habit of eating pieces of raw ham, were attacked about the same time. The symptoms in the case of the former consisted in diarrhea, accompanied by considerable griping pain and some nausea. She also experienced chilly sensations and general malaise, which continued for two days. The date of onset of the attack was December 3, 1895. Not regarding her trouble as serious she did not consult a physician until December 10. The diarrhea had ceased, but the patient was nervous and restless. She suffered from insomnia, anorexia, and occasional rigors, with flashes of heat. These symptoms gradually became augmented in severity until the eve of December 10, when swelling of the eyelids and cheeks supervened. She then called her physician. Examination revealed the following: Patient lying in bed; face flushed; expression of distress; pulse 96; temperature 101° F.; tongue coated and furred; conjunctiva congested and icterous; skin dry; knees flexed; cheeks, eyelids, and neck edematous. The slightest physical exertion occasioned great distress. Patient still suffered from rigors followed by flashes of heat, also from cephalalgia and a sense of distress in the bowels. Pain in the gastrocnemii muscles and in the extensor muscles of the lower extremities was acute near the tendinous insertions. The

slightest contraction of these muscles caused great suffering, so that patient was forced to keep quiet. Marked tenderness existed over the involved areas.

The symptoms from which the maid suffered—their date of onset being the same—were more exaggerated, but did not differ materially otherwise. Her face was more swollen and the edema extended down her neck and arms, the latter being held in a position of partial extension. The pulse was rapid and the temperature 102° F. at times. Pain was very intense, and marked swelling appeared over the involved muscles of the extremities. All of the symptoms continued in a more exaggerated form up to the end of the first week. Successively other groups of muscles became involved in the following order: first, after the extensors of the legs, the extensors of the arms, the intercostals, and lastly the diaphragm and the muscles of deglutition. The nervous symptoms in case two were vastly greater than in the first, and included general depression. At the end of the second week the symptoms seemed to have reached their climax. Involvement of the diaphragm was indicated by marked dyspnea and later orthopnea. The patient was stupid a large part of the time during the second week, and had muttering delirium, indicating how easily the condition might be mistaken for enteric fever. In the second case involvement of the muscles of the pharynx and fauces led to marked dysphagia and partial aphonia. By the fourth week the symptoms enumerated began to subside. The mistress, however, at the end of the sixth week, still suffered great prostration and nervousness; fatigue upon slight exertion, and a marked increase in the quantity of urine, amounting to sixty or seventy ounces in twenty-four hours. Further examination of the urine was negative, and the quantity gradually returned to normal. Two months afterwards both patients still suffered from rheumatic pains and the mistress had nervous prostration.

Seven Cases of Trichinosis occurring in the Practice of Dr. Dennis Hayes, of Milwaukee, Wisconsin.

I am indebted to the above gentleman for the following report:

A German family, composed of seven members, living in the outskirts of Milwaukee, one Sunday evening invited a neighbor and his wife to supper. A form of German sausage known as "roost Wurst" constituted a large part of the meal, and from subsequent developments it must have been imperfectly cooked. The following day every one of the nine individuals was stricken with a severe illness that showed the symptoms which I have described in discussing the two foregoing cases, although in a more pronounced form. A physi-

cian, who was called, diagnosed the cases typhoid fever. Dr. Hayes was afterwards consulted, and from the nature of the symptoms he suspected trichinosis. Accordingly he obtained some of the sausage, and, examining it with his microscope, found it swarming with live trichinæ. Two of the patients in the mean time had died, and examination of their muscles also revealed the presence of the trichinæ spiralis in large numbers.

Seven of the nine cases proved fatal, the two husbands recovering. Account of this localized epidemic spread rapidly throughout Wisconsin and the surrounding country, and was forcibly brought to the notice of Hon. Jerry Rusk, at that time United States Secretary of Agriculture.

Personally, I believe that cases of trichinosis are much more common than is usually supposed, the disease being overlooked. Many cases of chronic "rheumatism" are probably also explicable on the same grounds. Enough trichinæ not having been ingested to cause death after acute symptoms, they bore into remote parts of the body, and by their mechanical effect cause pain and local discomfort. In fact, the finding of trichinæ in the muscles in 2 per cent. of all cadavers on an average tends to bear out these impressions. I have in my possession an authenticated account of a case of trichinosis occuring in a horse. The case was observed by a prominent veterinarian in Ohio. Section of the muscles revealed an abundance of trichinæ in typical form.

The micro-photographs accompanying this article were executed by Professor Herbert M. Hill, of the University of Buffalo, from slides which I referred to him. I wish here to express my appreciation of his aid in providing the illustrations.

Diagnosis of Small Ovarian Tumors.

Dr. Davenport concludes his article with the following propositions: (1) Small intrapelvic growths give rise to marked symptoms. (2) Pain is usually noted, but does not bear a constant relation to the location or kind of tumor. (3) Menorrhagia or metrorrhagia is frequently present, especially in cases of cystic ovaries adherent to the uterus. (4) When uterine hemorrhage exists in connection with an intrapelvic tumor, and is not affected by intrauterine treatment (curettage or electricity), the tumor is probably ovarian rather than uterine. Reflex symptoms are rare with small tumors, at least in the earlier stage of their development.—*Boston Medical and Surgical Journal.*

REMOVAL OF A SARCOMATOUS THYROID GLAND WITHOUT AN ANESTHETIC; WITH TWO ADDITIONAL CASES OF IMPENDING DEATH FROM SUFFOCATION.

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Surgeon to the Episcopal, St. Joseph's, and Orthopedic Hospitals.

A man, aged 30 years, came complaining of a tumor of the neck. The following history was obtained: He said he was well until three months previously, when he noticed a small swelling on the front of his neck. It remained small until six weeks prior to his admission, when it began to increase in size; during the last three weeks this increase was very rapid indeed. It had not occasioned much pain, but recently difficulty in breathing and swallowing had developed. His voice became hoarse and he had some cough. Pain was felt in the neck and around the shoulders. Examination revealed a tumor the size of an orange, round, tense, but with a feeling of apparent fluctuation. It was somewhat tender to the touch. The median line of the growth was slightly to the left of the median line of the neck, and the tumor reached from the suprasternal notch to well up on the thyroid cartilage. It moved somewhat on swallowing, but was evidently attached to the surrounding tissues, thus preventing free motion. A casual examination caused me to regard it as a tumor of the thyroid gland, and, from its extremely rapid growth, possibly largely cystic in nature. At all events, I decided to incise and evacuate such cysts and portions of the growth as would tend to liberate the imprisoned trachea, and thus relieve his breathing. It was proposed to use ether as the anesthetic, provided it was well borne; if not, then chloroform. On beginning the administration of the ether the breathing became labored. It was immediately removed, and the patient allowed to sit up on the operating-table, with the expectation of the breathing becoming better. Instead of doing so it became worse. His face became pale and his lips blue; the air could plainly be heard hissing in and out of the constricted air-passages. It soon became evident that the breathing was not going to improve, and that if relief was not given the patient would die in a few minutes. He was then induced to lie on his side with the head and shoulders raised and an incision made into the tumor; only blood came, and the finger revealed a solid

but soft growth. The dyspnea becoming more urgent, an incision was then made at the upper edge of the tumor, which was rapidly deepened until the hyoid bone was felt. It was intended to expose the trachea above the growth, and see if a tube could be passed downward beyond the obstructed part, and enable the patient to get some air. It became at once evident that the growth had encroached so high up on the larynx that an exposure of the lower border could only be obtained by cutting through the whole thickness of the tumor, a proceeding which in itself might have proved fatal from hemorrhage; so with the idea of releasing the pressure of the tumor on the trachea the incision already made was prolonged downward to the suprasternal notch and deepened with a few strokes of the scalpel until the tumor was exposed. Two hemostats served to hold the tissues apart, and grasping the growth with forceps, it was pulled forcibly up away from the trachea. This seemed to improve matters somewhat, so, handing the forceps to an assistant, the soft parts were rapidly dissected aside, the thyroid arteries and veins clamped, and the whole growth loosened from its attachments, proceeding from below upward, and removed. A small piece of the right lobe was allowed to remain. It was connected by a flat fibrous band to the growth which involved the remaining portion of the gland. As soon as the tumor was raised the trachea was seen compressed and pushed to the right side. The patient, who by this time was almost dead, began breathing again, and soon was perfectly sensible. Comparatively little blood had been lost. A drainage-tube was inserted at the lower angle of the wound and the remainder closed with interrupted sutures. Recovery from the operation was prompt, the drainage-tube being removed on the fourth day, leaving a granulating spot half an inch in diameter, and the patient was soon up and around the ward. There was slight suppuration around a couple of the upper stitches, due to infection of the wound by the patient picking it and thrusting his fingers under the edge of the dressing. The neck, instead, however, remaining soft, soon became hard and brawny and the drainage-tube opening, instead of healing, became the seat of a recurrent growth. The tumor which had been removed was a grayish-white mass possessing in some places a fairly distinct capsule, at others, however, it was adherent to the surrounding tissues, and they were evidently affected by the malignant process, but not to such an extent as to enable it to be appreciated by the sense of touch. By the end of the third week the recurrent growth at the site of the drainage-tube opening was quite large. The breathing again became much embarrassed, and another attempt at relief became imperative. Chloroform was administered, and a mass the size of an egg removed. It was only partially encapsulated, very soft, and broke

into a pulpy mass, which had to be scooped and curetted away. The neighboring tissues were everywhere infiltrated. Some relief followed this operation, but within a week the growth again appeared at the site of operation, and on the ninth day, early in the morning, the patient had an attack of dyspnea, went into convulsions, and in a few minutes died. Post-mortem examination by the pathologist, Dr. Stengel, revealed a malignant growth extending from the sternum below to the tongue above and from the vertebral column posteriorly to the skin anteriorly. The large vessels of the neck were embedded in the mass of the tumor; the trachea was pushed to the side and compressed, and the esophagus, also involved, lay flattened by the mass against the vertebral column. Search was made for a point of rupture into the veins, but none was found. The lungs were also affected; microscopical examination showed the tumor to be a spindle-celled sarcoma with some, but not many, round cells.

There are few things in surgery which are so terrible and demoralizing to a surgeon as to have a patient in apparent robust health die on the operating-table. Should death take place soon after or even during an operation on a case *in extremis*, like those suffering from intestinal obstruction, then one would not feel so bad, because the contrast between life and death is not so marked, and one's own responsibility not so evident. In the case of the patient above recorded, he had been up and walking around the wards conversing and associating with the other patients, and his sudden death would have been directly attributable to the operative attempts. Twice before have somewhat similar events occurred to me. While resident surgeon in the Pennsylvania Hospital, serving under the late Professor Agnew, a young girl was admitted with a nasal polypus. He instructed me to remove it. All attempts to do so by grasping it with a forceps and trying to draw it out failing, ether was given, and another effort made. In doing so the pedicle broke and the tumor slid back into the pharynx. The patient stopped breathing at once, it being impossible for any air to enter, became blue, and seemed at the point of death. Hastily turning her on her face with the head hanging over the edge of the bed, a vigorous thump on the back dislodged the obstructing body, and out came an enormously large, soft polyp. The third case occurred last year. My resident was instructed to operate for circumcision on a boy, about 9 years of age, in an adjoining room. The operation was satisfactorily performed, when, hearing a commotion, I entered and found the patient in the throes of asphyxia. The face was congested, the lips blue, the teeth clinched, and the mouth covered with vomited matter. Realizing the state of affairs, the jaws were pried apart with the hands, and, thrusting a forefinger between the teeth, I succeeded

in dislodging a piece of meat which was impacted in the opening of the larynx. The patient was lying face down with the head over the edge of the bed and slightly drawn back. The obstruction was no sooner removed than attempts at respiration induced vomiting; again and again was it necessary to clear the fauces with the finger. This continued for several minutes, and not until the stomach had been emptied of its contents did the asphyxia disappear and the natural color of the face return. He was as near the dividing line of life and death as were the other two patients, and I trust to be spared a repetition of the experience. The first case illustrates forcibly the irritative effects of ether on the respiratory passages. It had been intended to discontinue the ether, if not well borne, and substitute chloroform; but the effects of the irritation caused by the ether did not disappear on its withdrawal, and it was necessary to operate without any anesthetic. It serves to demonstrate the fact that ether is not always the most suitable anesthetic. Cases arise in which one should either employ chloroform or no anesthetic at all. In this country the objection to the use of chloroform is so strong that many physicians never have used it, while others resort to it only in very rare cases. Personally I believe that most of the objections which have been urged against it are well founded, and that it is a treacherous agent with a powerfully depressant effect on the circulatory system. Whenever it is possible to do so I use chloroform only to induce anesthesia, and then substitute ether. In the surgery of the respiratory passages ether is particularly objectionable when there is inflammation or a tendency to edema, then the irritative effects of the ether will, either by directly aggravating the existing condition or by causing an outflow of tenacious mucus, cause interference with the breathing. In the case cited the dyspnea was thought to be due more to narrowing of the lumen of the trachea by direct pressure of the tumor than to inflammatory swelling or edema, and that was why it was decided to give ether a trial. The fact of the dyspnea progressively increasing even after the ether had been withdrawn shows how persistent its evil effects on the respiratory passages are. The use of an anesthetic also predisposes the patient to a septic pneumonia. In other operations on the air-tracts, as in tracheotomy, I usually operate without an anesthetic or else administer chloroform until consciousness is lost and then rapidly complete the operation without it. In cleft palate I have used both chloroform and ether, and am not entirely satisfied with either; perhaps a combination of the two, as suggested by Dr. Mears, is best. In the case of the nasal polypus attempts had been made to use a snare, but without success, and even had it been used the same accident might have happened. It is an occurrence that may take

place at any time in the removal of large growths through the fauces. Had the thumping failed to dislodge the obstructing tumor my next move would have been to have introduced the finger to remove it. The trouble in the last case was due to the child having eaten a hearty meal not long previous to the operation. He had been brought to the hospital for the operation, and it was impossible to have him properly prepared. It shows the danger of administering anesthetics on a full stomach. The main difficulty in this case was to gain access to the pharynx. It is certainly common for anesthetics to be administered when no appliance is at hand with which to open the jaws. In European clinics, where chloroform is the anesthetic usually employed, it is customary to have ready for use a mouth-gag or forceps with which to pry or force the teeth apart in case of necessity. In this country many anesthetizers will have a forceps at hand to pull the tongue forward, but nothing with which to pry the jaws open. In some cases you must gain access to the throat at all hazards, and that quickly or your patient will die. In the one above detailed, fortunately, we were able to force the teeth apart and, at the cost of a certain amount of laceration, push the forefinger into the mouth. In the case of an adult and even some children this might have been impossible, and resort to tracheotomy would have been necessary. We really have no very satisfactory manner of opening the jaws when firmly clinched. The various forms of forceps and gags devised by Roser and others, while efficacious, are apt to break the teeth. Probably as good a means as any is to have a wedge of wood, about three inches long and an inch thick, and force this between the teeth. This is simple and affords sufficient space to grasp and draw forward the tongue or introduce the finger and dislodge any foreign bodies which may be present.

The Use of Sulphate of Sodium as a Hemostatic.

In the *Revue Médicale de la Suisse Romande* of January 20, 1897, Reverdin contributes an interesting article upon this subject, experimental and otherwise, and concludes that small doses of sulphate of sodium (two grains every hour) are of great value in certain cases of capillary hemorrhage for the purpose of arresting the flow of blood. He has also found this method of treatment of value for the control of graver hemorrhages. His experiments upon animals seem to show, however, that the remedy is only of value if given by the stomach or injected into the veins. Under these circumstances it distinctly increases the coagulability of the blood. On the other hand, it is a noteworthy fact that its administration subcutaneously does not produce the same result.

WHAT CAN BE ACCOMPLISHED BY TREATMENT OF EUSTACHIAN TUBE WITH SPECIAL CONSIDERATION OF THE TREATMENT OF CHRONIC STENOSIS.[1]

By George Morley Marshall, M.D.,

PHILADELPHIA.

Let us briefly recall the anatomy and function of the Eustachian tube, in so far as it concerns the measures advocated in this paper. The Eustachian tube is the passage between the naso-pharynx and tympanic cavity,—in length thirty-three to forty millimetres. From its relatively large pharyngeal mouth it extends twenty-five millimetres with walls formed by an incomplete furrow of fibro-cartilage, consisting of a posterior and anterior plate, the anterior being a movable one. This portion of the tube, where not cartilaginous, is membranous, which, with its lining mucous membrane, has considerable thickness. This cartilaginous portion of the tube unites with the remaining ten to fifteen millimetres of the osseous portion of the tube, forming with it an obtuse, somewhat rounded, angle of 135 degrees. At this angle the lumen of the tube is smallest,—that is, two to three millimetres.

The walls of the Eustachian tube are lined by glandular mucous membrane, with ciliated cylindrical epithelia, whose ciliary movement is directed towards the pharyngeal opening, which has a lower level than the tympanic opening. The lining of the osseous portion is smooth and closely incorporated with the periosteum. With surrounding conditions normal, the normal Eustachian tube allows the passage of air not with absolute freedom, for the tube at rest has its sides in contact, but yet with sufficient freedom to establish an approximate equality of atmospheric equilibrium, allowing the secretions of lining membrane of the tube and of the tympanum to escape or evaporate. But if atmospheric pressure is not approximately equal, the air in the tympanum is absorbed by surrounding liquids through the walls of blood- and lymph-vessels, obeying the law that liquids absorb their own volume of associated gas, and thus the air not being renewed in the tympanum, there follow the well-known symptoms,—deafness, feeling of fulness, a probable tinnitus, autophonia, but especially that

[1] Read before the Sections of Laryngology and Otology of the American Medical Association, Philadelphia, June, 1897.

decisive sign of present or former obstruction, the appearance of the retracted tympanic membrane itself.

But with retracted membrane the alert aurist would not jump to the conclusion necessarily of an obstructive Eustachian tube, as turgescence or hypertrophy of the turbinated bodies alone might account for the rarefied air to a considerable degree. Still more will the pressure be out of equilibrium if the opening between pharynx and naso-pharynx be occluded.

Two cases presented themselves to me which will illustrate this condition to an extreme degree. M. S., aged 40 years, had periods of great deafness, and in one such period came to me for relief. The tympanic membranes were strongly retracted, the turbinated bodies were very turgescent, the patient being evidently in the midst of an attack of acute coryza. The communication, in this case, I found between the pharynx and naso-pharynx was totally shut off by a smooth impervious membrane. The history of this condition I found was as follows: When a school-girl at Heidelberg she was bending over her desk with a long sharpened slate-pencil in her mouth, the teacher, coming behind her to rebuke her for idleness, gave the child a blow on the head with a book. The head was driven upon the unyielding pencil whose other end was supported by the desk. Its point thus was driven into the pharyngeal wall. Although attended by one of the able professors of the university, extensive ulceration occurred, and doubtless the final condition failed to be presented to him. At least, her condition had remained from childhood as she presented herself to me. At once I opened this tough membrane by an instrument, which I had devised for somewhat similar cases, and which I present here because of its great convenience; her hearing was at once restored, and she was enabled to blow her nose for the first time in thirty years.

Another case, B. S., 4 years old, had had scarlet fever a year previous, resulting in great deafness, which was worse at times of coryza. This case I saw with Dr. Wm. Zentmayer. Adhesion had resulted between the pharyngeal wall and the soft palate, producing complete occlusion of the passage. The child was operated on with the above instrument, which aided much in the facility of the operation, as it is extremely difficult to manipulate a cutting instrument back of the palate without danger to the carotid arteries, and I know of no other instrument devised for such cases. The hearing at once improved in this case, and, although the sclerosed tissue at the seat of the old ulceration again closed, the operation was repeated a third time after intervening periods of considerable length, after which the opening became permanent.

We must believe that many cases of *lesser* degree of obstruction at this point (the naso-pharyngeal opening) would still have the effect of disturbing the equilibrium of atmospheric pressure in the tympanum, and the above cases are only cited because of the absolute demonstration of the effect of rarefied air in the naso-pharynx. Other lesser obstructions, as adenoid growths, which I believe directly arise from a previous nasal obstruction, although possibly a temporary one, and which, producing this rarefied condition of atmospheric pressure, will, with its continuous yet slight suction power, so affect the yielding tissues of the infant as to cause venous congestion favorable to the growth of adenoid tissue. Thus, I believe, adenoid tissue instead of being responsible for venous congestion, as is maintained by prominent authorities, is itself one of the sequelæ of the congestion.

Although certainly the continued presence of lymphoid growths favors also the continued congestion and obstruction, so likewise hypertrophies of the turbinated bodies, deflected septi, nasal polypi, and nasal spurs, may interfere with the ingress and egress of air, and therefore the resulting equilibrium of atmospheric pressure, and they must therefore be removed by appropriate operation or treatment before attention is directed exclusively to the Eustachian tube itself.

Now, if obstruction of nasal passages or nasal pharynx produces this want of equilibrium in the tympanum, so much more will stenosis or occlusion of the tube itself, and will lead to that venous congestion of the tympanum which I believe is responsible for a very large majority of cases of chronic tinnitus aurium, as well as chronic deafness resulting from sclerosis of tympanic membrane and associated structures, for not only is the circulation of the blood abnormal, but the reverberating sound-waves of the blood-currents have no longer their normal exit, but are as in the closed sea-shell which confines the sound in unbroken walls. I have noticed this tinnitus to be removed for several days after the relief of the venous congestion (as I believe) following the removal of a nasal spur with free hemorrhage, and so I could explain the relief after depletive measures as by cathartics and pilocarpine which, as we know, give temporary relief. But the belief that free ingress of air into the tympanum will at last relieve the congestion, and therefore the tinnitus, has been borne upon me, especially during the last two years, by the results of a more systematic bougying of the Eustachian tube, where stenosis of tube or retraction of tympanic membrane existed. I have the tabulated series of thirty cases which had long become chronic, and which will therefore be of more interest because of the usually intractable nature of such cases. Seventeen were chronic cases of tinnitus, and all chronically deaf, with one exception, which, although a marked case of chronic tinnitus,

strangely enough exhibited no degree of diminished hearing, yet was, as I think, the first stage of venous congestion. After systematic bougying, the result in these seventeen cases, seven were made entirely free; five improved to such a degree that it became no longer troublesome, while in five there was no reported change. But with one exception those that did not improve had but few treatments. In two of the favorable cases, although the tinnitus had been constant for six or more years, it was removed only after six months of treatment. In the twenty-nine cases of chronically deaf, one only was restored to normal hearing, seven were very much improved, five slightly improved, one heard better in one ear, but worse in the other, while in nine there was no change. One of these cases was of deafness without tinnitus, which was decidedly improved by the bougie, although the air douche had previously failed to relieve to the same extent, yet in this case there was relapse to nearly the first condition, although bougied for quite a year. But in no case was there any unfavorable result, unless it was in one case, who, six weeks after her last treatment, was taken with an acute middle-ear trouble, which soon subsided; but the patient had been in the interval perfectly free from pain, in fact, relieved in a degree from deafness, and she attributed the inflammation, and I think justly, to a severe cold, quite independent of bougying.

I speak of this as a possible sequel, as I have been particularly watchful for any possible bad effects of the bougying. Thirty may seem too small a number from which to draw sweeping conclusions, yet the good results in these few cases may have been due to the method used in its performance, and I therefore state my method in the form of rules which are upon selection of appropriate cases,—viz., those with retracted membrane and which receive temporary relief by the air-douche or massage. My rules are as follows:

(1) Never delegate the work to another.

(2) Never do it hurriedly (several times, however, I have broken this rule, which resulted in a failure), but always count upon having, if necessary, one-half hour for the operation. Usually it may be done in a minute or less, but difficult cases arise; but if done leisurely it is surprising how easily an apparently difficult case becomes.

(3) Have properly fitting, well-shaped Eustachian catheters. Those from Reiner, in Vienna, have given me perfect satisfaction during ten years of constantly making use of Eustachian catheters.

(4) Have antiseptically clean catheters and bougies.

(5) Prepare the mucous membrane of nasal passages, especially the pharyngeal mouth of the Eustachian tube, with an application of a 10-per-cent.-solution of cocaine.

(6) Smear the bougie with a 3 per cent. ointment made with lanolin and nitrate of silver. This is the measure that is, as far as I know, entirely original, and it is to this measure I attribute largely the good results. Unlike other fats lanolin clings tenaciously to the bougie; it shields the bougie and makes its passages more easy; and with the argentum nitrate it is antiseptic and locally alterative in effect. I have it prepared from the aqueous solution of silver nitrate, so that it virtually becomes a stiff emulsion. It is only after long exposure that the surface of the ointment undergoes a chemical change, becoming black on the surface, but apparently unchanged beneath.

My seventh rule is to observe that the bougies are in perfect condition. It is possible for celluloid to become brittle and therefore highly dangerous, and for whalebone to become rough or thready, and therefore irritating.

(8) Let the bougie rest in place twenty minutes to half an hour in the Eustachian tube.

(9) Bougie not oftener than twice per week, and

(10) Measure the bougie and see that the bougie does not advance more than thirty-three millimetres.

After making sure of nasal and naso-pharyngeal freedom, the above treatment seems to me a rational one, and to be directed at once to the securing of equilibrium of atmospheric pressure in the tympanum, to secure this condition, I believe, should be the foundation effort. Where equilibrium is wanting, air douching, either by catheter or Politzer's method, or otherwise, as also massage of the ossicles and membranes can be but of temporary effect.

The analogy of chronic stenosis of the tear-duct and of the male urethra, while not perfect, is at least sufficiently suggestive. It would be a timid surgeon that in stenosis of either of those passages would rely upon an application of a vapor or a liquid. If gradual dilatation in those passages is indicated and an accepted measure, so likewise I believe it to be indicated in the Eustachian tube. That stenosis may at some time return is no argument in any case that the treatment should not be adopted, and yet, because of the delicate nature of the Eustachian tube, it should never be treated by careless or unskilled hands.

A method of treatment in tinnitus aurium that even in so small a series as this, which results in 41 per cent. of cures and in 70 per cent. of complete relief, is so vastly superior to any method that I know of that I shall continue it with confidence, although a succeeding and longer series may not give as fair a result.

ANTITUBERCULIN.[1]

JOSEPH MCFARLAND, M.D.,

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THE extraordinary successes of the "Blutserumtherapie" led many of our esteemed colleagues to entertain the most ardent expectations of miraculous results in every department of the field of infectious diseases.

The constantly increasing number of recoveries from diphtheria that were reported, and the occasional recoveries from tetanus that were hurried into print, convinced large numbers of the profession, as well as laymen, that the new discovery led to an almost unlimited field of usefulness.

In those early days I was frequently asked what the chances of the serum treatment of tuberculosis were likely to be, and why I did not hasten to be among the first to benefit mankind with that much-needed boon,—a "cure for consumption." My answers to these inquiries were received with incredulous looks, and my endeavors to show why serumtherapy for tuberculosis was likely to fail, in the majority of cases, were unheeded. It was only after several years had passed, and I had been almost forced into the field, that I at length consented to undertake the experimental research forming the basis of this paper.

In order to make clear my grounds of disbelief and hesitation, I beg your indulgence to a brief *résumé* of the pathology of tuberculosis.

Tuberculosis is primarily an inflammatory process. Every tubercle begins its history as a simple inflammatory node not very different from those produced by the introduction of foreign particles into the tissues. In the early stages of the disease there is rarely any marked systemic involvement, and many cases progress to the considerable destruction of organs before constitutional symptoms are observed. Up to a certain stage, therefore, tuberculosis is not essentially different from any ordinary or non-specific focal inflammation. It is as the disease progresses that the difference is observed, for as the cause of the disease is alive and engaged in growing and propagating its kind, there is a progressive tendency for the disease-producers to disseminate and new inflammatory foci to form, and as

[1] Read before the Section on Practice of Medicine, at the meeting of the American Medical Association, 1897.

growth means metabolism, there are waste products of the bacterial growth to be absorbed and eliminated.

This is by no means all of the pathology of the disease. The tubercles develop at the expense of the organs whose tissues, transformed into or replaced by the tuberculous tissue, are unable to perform their functions or do so so insufficiently that disease must result from their incomplete action.

Lastly, the tuberculous nodes in which no blood-vessels are formed constantly soften and disintegrate with the frequent formation of holes or cavities in the tissues, in which, if they communicate with the outer air, saprophytic bacteria are likely to grow and add the harmless or often harmful results of their metabolism to the blood.

Tuberculosis is thus seen to be a progressive, destructive, and in most cases essentially chronic disease, from which death is more often the result of the destruction of organs—suspension of vital functions from local lesions, and profound secondary anemia—than from any poisonous principle in or produced by the bacillus.

Viewed from such a stand-point,—and this is the stand-point I always took,—what could an antitubercle serum accomplish? Can it reinstate disorganized organs? Can it prevent secondary infections? Can it prevent the dissemination of the bacilli in the organs or can it kill the bacilli already in the body? The last two questions are admittedly possibilities, and to them a third possibility might be added, the serum might excite the normal vital resistance of the animal body so as to enable it to dispose of the bacillus by phagocytosis or its bactericidal humors, and so render it harmless.

These seemed to be the possibilities, but the insurmountable difficulty seemed yet to come. What would an antitubercle serum be? How could it be made?

Of course, the mind naturally turned to *tuberculin* as that which was to be the means of securing the desired end, but in tuberculin the desired and necessary means did not seem present. Tuberculin bears in no respect the same relation to tuberculosis that diphtheria-toxin and tetanus-toxin bear to diphtheria and tetanus. Tuberculin is not a toxin, and when large doses are administered to healthy animals not only fails to produce symptoms in any manner similar to tuberculosis, but, in fact, any serious symptoms at all.

In all diseases successfully combated by antitoxins there are distinct toxins, productive, when injected into animals, of all of the essential symptoms of the disease.

The fact, however, that tuberculin, when injected into tuberculous animals, produces a marked febrile reaction and, in sufficient dosage,

death, is one that must not be overlooked, and one from which the conclusion that an "antituberculin" might do good was drawn.

The idea of antituberculin is not a new one. Without entering upon the history of the subject, let me remind you that it was first suggested by Viquerat in Switzerland, and has been for some time studied by Paquin.

I have never been able to convince myself, either from my experiments or from my reading of the subject, that antituberculin can be curative in action, yet both with Paquin's and with my own antituberculin cures have been reported. How this curative effect may be a remote result of the use of the remedy may, however, appear later on.

I am of the opinion that the systemic symptoms of tuberculosis and the local distribution of the bacilli are favored by tuberculin or some similar substance in the blood of the animal diseased, and its effect upon the tuberculous tissue. This opinion is in conformity with the results obtained by the injection of small doses of tuberculin into diseased animals. It is not impossible that the hectic of early cases, which cannot be attributed to secondary infections, may be due to the periodic reaction of the organism to tuberculin produced in its own body.

If it should be demonstrated that, when tuberculin is injected into an animal, it is either changed into an antituberculin or stimulates the cells of the animal to produce an antituberculin, or in any way effects the origin of an antagonistic or antidotal substance, it would be quite proper to conclude that such a substance would be of benefit, when injected into tuberculous animals by suspending those ill effects directly traceable to the action of the tuberculin itself.

To determine the formation of such an antidotal substance in the blood of an immunized (or better *accustomed*) animal is, however, attended with great difficulty, for only upon tuberculous animals can the effects of tuberculin be shown, and only upon such animals can the combined effects of tuberculin and antituberculin be shown.

The method employed for the attempted production of antituberculin follows the now well-beaten path laid out by Behring. We chose the ass, and, after preliminary testing for glanders, administered a series of gradually increasing doses of tuberculin from one to 150 cubic centimetres during a period of several months. The blood-serum of this animal constituted the antituberculin. Unfortunately, the blood-serum of the ass is peculiarly grayish in appearance and never quite clear, so that the preparation is not so attractive to the eye as is the beautiful amber-colored serum of the horse. In preserving the serum I made use of 0.5 per cent. of trikresol, this reagent having always given perfect satisfaction in my work with the diph-

theria antitoxin. To free the serum from the precipitate caused by the trikresol, it was passed through a Berkefeld filter.

The entire research being purely theoretical and speculative, there were no data upon which to base a judgment concerning the dosage. I advised, however, the use of one cubic centimetre as a beginning dose, and increase according to the symptoms. As a rule, this dosage was found to be too large. In the reported cases the patients were given from one-half to ten cubic centimetres at a dose.

Supposing that the serum to be efficacious in the treatment of tuberculosis, what action shall be expected of it? From the premises given at the beginning of this paper I think it may be concluded that,—

(1) If the pyrexia of tuberculosis be the result of tuberculin-poisoning, the temperature will be reduced.

(2) If the rapidity of the pulse depend either upon the temperature elevation or the action of the poison, the antituberculin by annulling the poison and reducing the fever will quiet the pulse.

(3) If the spread of the disease depend in part upon the destruction of the tuberculous tissue and the liberation of the bacilli from it by the specific action of the tuberculin, that destructive reaction will not take place, the tissue will maintain its integrity, the bacilli will be held within bounds, and not spread.

(4) If the retention of the tubercle bacillus in the already diseased tissue will enable the changes in the surrounding healthy tissue to encapsulate it, and if the reduction of the temperature and pulse aid in the temporary or permanent improvement of the patient, the antituberculin may be a means towards the production of a final cure.

Having now elaborated a theory of action for the serum the ass furnished me, the most difficult problem ever physician is called upon to solve awaited me. The proof of usefulness was to be demonstrated.

The first test of usefulness was made upon guinea-pigs.

Experiment I.—Twelve adult guinea-pigs were inoculated with tuberculous sputum and immediately subjected to a routine treatment of daily injections of the antituberculin, beginning with 0.01 cubic centimetre, and in the course of twenty-five treatments, lasting over a period of five months, increasing to two cubic centimetres. The first of these animals died in eleven days, probably not from tuberculosis. The others died at varying periods up to three months. One lived 213 days. The autopsies showed all the animals except the first to have extensive tuberculous lesions.

Experiment II.—At the same time twelve healthy guinea-pigs were also inoculated and subjected to no treatment. One of these animals is still living without tuberculosis. Of those contracting tu-

berculosis one lived 127 days. Evidently the sputum used for inoculation did not contain very virulent tubercle bacilli.

EXPERIMENT III.—Six healthy guinea-pigs were subjected to a course of immunization (?) similar to that described in Experiment I. At the end of five months these animals were all well and healthy. They were then inoculated with pure cultures of the tubercle bacillus, and are still living (three months), though all show enlarged glands and other signs of tuberculosis.

These experiments are not a glittering success. All that can be said is that the antituberculin seems to exert a life-prolonging power of some importance.

From Experiment III, I certainly did right to conclude that when guinea-pigs weighing about 500 grammes could endure two cubic centimetres of the serum given hypodermically it was devoid of any poisonous property. To determine, however, whether large doses administered to guinea-pigs not previously accustomed to it—

EXPERIMENT IV.—Three healthy guinea-pigs were each given one cubic centimetre of the serum. No effects were observed.

I suppose that at the present time all medical men are more or less acquainted with the action of tuberculin upon tuberculous animals. In brief, when small doses are administered, there is a febrile reaction; when large doses are administered, death follows if the disease be advanced.

The next experiments were conducted to determine whether the mixing of the tuberculin and antituberculin *in vitro* before injection into a tuberculous animal would destroy the effect of a least certainly fatal dose of tuberculin.

EXPERIMENT V.—Three tuberculous guinea-pigs, with the disease advanced six weeks, were given respectively one, one and a half, and two cubic centimetres each of a tuberculin (diluted) of which the fatal dose was thought to be one cubic centimetre. All of the animals died in twenty-four hours.

EXPERIMENT VI.—Three healthy guinea-pigs receiving the same treatment showed no symptoms.

EXPERIMENT VII.—Of five guinea-pigs inoculated with pure culture of tuberculosis, February 13, three survived until March 31, on which date each was given a fatal dose of tuberculin *plus* varying quantities of the antituberculin from one-half to two cubic centimetres. The first lived until April 15; the second, until April 11; and the third, until April 15. All three animals survived the tuberculin and died from the tuberculosis.

The success of the experiment prompted its repetition.

EXPERIMENT VIII.—Six guinea-pigs with advanced tuberculosis,

resulting from inoculation with a pure culture of the tubercle bacillus, were given each a fatal dose of the tuberculin mixed with the same quantities of antituberculin that had protected the animals of the previous experiment. All the guinea-pigs died within twenty-four hours.

The last experiment seemed to undo the results of the one that preceded it. However, it must not be forgotten that it is extremely difficult to determine the *least* fatal dose of tuberculin with any accuracy, as it varies according to the susceptibility of the guinea-pig and the stage of its disease,—two factors not at all easy to work out. The guinea-pigs of the last series were probably further advanced with their disease than those of the earlier experiment, and could have been killed by much smaller doses of tuberculin.

The number of guinea-pig experiments made was too small to be conclusive, but the results they afforded were not sufficiently entertaining to suggest much repetition. As in all experiments upon animals, one must not forget that man is not a guinea-pig and may react differently to remedies, I decided to make a clinical test of the serum.

This was not *mal apropos*, for while the guinea-pig is an animal which, under natural conditions, invariably succumbs to a tuberculous infection, man frequently recovers; and while in the guinea-pig the disease always assumes a rapidly fatal acute form, in man it generally assumes a chronic form, in which the efforts at regeneration and recovery are marked.

Through the kindness of a number of friends the serum was applied in clinical medicine upon about twenty cases of human tuberculosis. It is really too early to express in positive terms what the outcome of the treatment is to be, but from the reports I have received I submit the following :

One "cure"; one "encouraging success"; one "was better during the treatment, worse when it was stopped, and improved again when it was resumed"; three "decided improvement"; two became worse; two died (during but not from the treatment); seven showed no definite change. Upon the remainder I have no data.

It will be best, I think, for you to draw your own conclusions from these reports. It seems as if a *definite improvement* had occurred in some of the cases, but the vagaries of the disease are well known.

In the cases manifesting the improvement the temperature declined, and became less hectic; the pulse slowed; the appetite and body-weight increased, and the cough became less violent. The disappearance of the tubercle bacilli is the most rare and least to be expected result of the use of the remedy.

It would be an egregious error not to speak of the ill effects ob-

served by some of the clinicians. The most common untoward symptom is extensive urticaria immediately following the injection. Sometimes this is general, sometimes only local. It seems to have been a distressing symptom in many cases. Painful swellings at the seat of injection seem to have been common and undesirable. No abscesses were reported.

I feel sure that these symptoms had nothing at all to do with the antituberculin, but were all caused by the fact that I was obliged to distribute the serum perfectly fresh from the animal instead of giving it time to "ripen." All fresh serums are likely to produce urticaria and should be avoided.

Some of the swellings were no doubt due to overdosage. I am told that many patients cannot bear more than 0.33 cubic centimetre without sensations of chilliness, pain in the back and joints, and painful swellings at the point of inoculation. The most successful dosage seems to be one cubic centimetre daily, injected beneath the skin of the arm with the usual precautions.

Conclusions.—From the experiments—both laboratory and clinical—that have been made, I feel that we can assert that antituberculin is a remedy possessed of some value in the alleviation of the sufferings of cases of advanced tuberculosis, in which the symptoms are largely those of tuberculin-poisoning.

I desire to express my thanks to Dr. J. C. Wilson, Dr. Kalteyer, Dr. James Tyson, Dr. T. Mellor Tyson, Dr. H. G. M. Kollock, Dr. E. S. Reynolds, Dr. J. C. Welch, Dr. James M. Anders, Dr. M. R. Ward, Dr. Guy Hinsdale, Dr. A. A. Eshner, Dr. J. Solis-Cohen, Dr. S. Solis-Cohen, Dr. T. V. Crandall, and others, whose kind interest in the subject gave impetus to the experiments, and who gave me the reports upon the cases studied clinically.

The Austrian Universities.

The number of students at the Austrian universities last semester was: Vienna, 6104; Gratz, 1667; Prague, 1391 German, 2787 Bohemian; Innsbruck, 1004; Lemberg, 1556; Krakau, 1296; Czernowitz, 391. Of the total number, 4728 were medical students.

THE OCULAR MANIFESTATIONS OF ANEMIA.

By William Campbell Posey, A.B., M.D.,

PHILADELPHIA,

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The clinician judges the state of the vascular system of his patient by noting the condition of the peripheral capillaries as it is manifested in the color of the lips and nails and in the general appearance of the skin. He determines the force and power of the circulation by the pulse and by the cardiac impulse. The ophthalmologist, however, by means of his wonderful mirror looks into the eye, and obtains a highly magnified and unrestricted image of the perfect cycle of the supply of an organ with arterial and the escape of its venous blood, and is enabled to estimate the quality and the amount of blood by direct observation.[1]

The eye specialist can further study the action of the heart by means of the retinal pulse. It would seem *a priori* that it would be an easy and rapid matter, therefore, for him to diagnose pathological conditions of the blood, and one would think that it would only require an examination of the fundus of the eye to determine the existence of such disorders. As a matter of fact this is often true, for there are, as a rule, changes in the eye-grounds which are quite characteristic of the different conditions which cause them, and their discovery by the ophthalmologist has frequently been the index for the recognition of the general disease. In many of the cases, however, where the disorder of the blood is but of slight degree, there are no lesions which can be regarded as indicative of vascular origin. This may be due to the fact that ophthalmologists are as yet unable to properly recognize and explain many of the finer changes which occur in the fundi, for the physiological limits are so broad, and the changes wrought by the different states of ametropia are so varied, that one hesitates to impute slight changes to any definite cause. While it is true, therefore, that the information gained by the use of the ophthalmoscope is often negative, and while, owing to the introduction of modern methods of blood-counting, there may be but little need of the ophthalmoscope in properly diagnosing diseases of the blood, nevertheless, the opportunity of actually viewing the circulation should never be lost sight of, for an ophthalmoscopic examination will frequently aid in the elucida-

tion of difficult cases, and will often throw light upon the different types of vascular disorders.

Simple Anemia—Chlorosis.—Although there are many general subjective symptoms of chlorosis, it is seldom that we find structural changes in the fundi,—just as it is rare to see extensive histological changes throughout the body the direct result of this disease,—so that the observations which have been recorded have been for the greater part variations in the retinal vessels. These were found to occur in the vast majority of the cases. Thus, Rählman[1] found an arterial pulse in two-thirds of his cases, and as he noted that this occurred in persons who were relatively well nourished, although they had a waxy look, whilst those in whom the sign was absent were weak and in a state of collapse, he attributed the pulsation to hydremia. This author based his observations upon eighty-six cases of chronic anemia, examined repeatedly and exactly by him. In only from 15 to 23 per cent. of his cases were there no changes in the fundi; in 20 per cent. there was retinal anemia, while in 57 to 67 per cent. there was distinct retinal hydremia. This is quite in harmony with the appearance of the conjunctiva, for it has been often noted that in place of the waxy, bloodless appearance one expects to find in chronic anemia, there is frequently a pinkish-yellow color of that membrane, which is due to a slight congestion or dilatation of its vessels.

Rählman found further that the pallor and transparency of the retinal vessels was most influenced by a simultaneous and marked diminution in the per cent. of hemoglobin and the number of red blood-corpuscles.

Schmall,[2] who based his results on the observation of ninety-four cases, of which fifty-five were chlorotic, thirty-eight from severe loss of blood, fevers, malignant neoplasm, etc., differed quite a little in his observations from Rählman. Unlike this author, he did not see increase of the arteries of the retina in any case where there was not some local condition in the eye, such as conjunctivitis, cramp of the ciliary muscle, etc., which could cause it, and he thinks it probable that such conditions obtained in Rählman's cases also. He found that in many cases of anemia the retinal vessels were normal, but when there were any changes, they were common to both arteries and veins. As a rule, the veins were relatively enlarged, rarely tortuous, while the arteries were very often quite so. He found arterial pulsation in twenty out of fifty-five cases of chlorosis, and attributed it "to a certain amount of cardiac contraction combined with sudden relaxation of the heart muscle, occurring in certain states of low arterial tension." He does not think, therefore, that this sign has any important diagnostic or prognostic value.

Laqueur, on the other hand, dwells upon the importance of retinal pulsation as a positive sign of circulatory disturbances, and draws clear distinctions between true pulsation and the so-called pressure pulse as noted in acute glaucoma, in the algid state, and in some other conditions.

Becker[3] thinks that the pulsation is due to a local and transient paralysis of the vessels.

In opposition to Schmall's deductions, Friedrichson[4] publishes the results of his own independent researches upon the same subject. In brief, he found, in eleven cases of anemia, after hemorrhage, and in fifteen cases of chlorosis, that the hemoglobin does not stand in any relation with the number of the red corpuscles. He noted, further, that in the chlorotic tortuosity of the arteries and veins often occurs, of the former, the more frequently; arterial pulsation was constant in the form of locomotion, and transparency of the arterial vessels was coincident with that of the veins, and preserved a certain relation with the quantity of the hemoglobin.

On the other hand, Saundby and Eales,[5] who examined fifty cases of chlorosis, did not observe arterial pulsation in one instance, nor did they find that venous pulsation was more frequent than common. They did note, however, that the veins were usually nearly of the same size and color as the arteries, although they were sometimes broad and tortuous. They found in all cases a noticeable pallor of the disk and fundus, in some cases of extreme degree, and in quite a large proportion there were marked evidences of neuroretinitis, though none of these were of so high degree as have been reported by Gowers,[6] Bitsch,[7] Williams,[8] Mackenzie,[9] Nason,[10] and Dieballa.[11] In several of these cases the changes in the fundi were so marked that they were mistaken for the retinitis of albuminuria and of brain tumor.

The easy tiring of the accommodation, often seen in anemia, is attributed by Berger[12] to insufficient nourishment of the ciliary muscle, and Noyes[13] has found paralysis as well as paresis of that muscle to result from anemia.

The author has noticed that anemia is a frequent cause of many intractable cases of muscular asthenopia, particularly of that class designated as exophoria, where there is usually not only a weakness of the rectus interni but of the associated ciliary muscles as well. As further indicative of the same action Jacobson[14] has seen a clonic spasm of the lids in anemic children, which was associated with a senile condition of the surrounding muscles, and resembled the clinical picture of chorea minor.

From the cases of chlorosis, which the author has had an opportunity of examining, it would appear to him that ocular manifestations

are far more frequent than is usually supposed, for in nearly every case where the per cent. of hemoglobin had been much reduced he was able to note changes in the fundi.

On account of the close capillary system of the head of the optic nerve, any marked departure from the normal tint of the blood would be apt to make itself manifest there, and as a matter of fact the most constant change which was observed in the fundus was a dull, lustreless, grayish-white nerve. At times the nerve appeared a little fluffy, especially to the nasal side, and its edges slightly obscured, but of nineteen cases of marked chlorosis examined by the author he did not find marked swelling of the disk or true neuritis in any one case. The nearest approach to this was in a case reported by Dr. Oliver at the Ophthalmic Section of American Physicians in May, and which the author had an opportunity of seeing in Dr. Oliver's service at the Wills Eye Hospital. Here there was quite marked neuroretinitis. The disk was somewhat pallid, and there was extreme tortuosity of the retinal vessels, especially of the veins. Next in frequency to the changes in the nerve-head the author found a broadening and slight pallor of the retinal veins. Venous pulse occurred spontaneously in nine of his cases.

Pernicious Anemia.—Clinicians have recognized the presence of retinal hemorrhage in this disease pretty generally, since Biermer[15] first called attention to them in 1871. Of thirty cases examined by Horner[16] there were large hemorrhages and dilated veins in nearly every case. Quincke[17] noticed the same changes in seventeen instances. Although many believe (Osler and Natanson) that the presence of retinal hemorrhage is a feature of the disease, later observations have shown that they are not nearly so uniformly present as these figures would indicate. As a rule, they occur in advanced cases, although they may be absent even when the anemia is extreme; their presence, therefore, cannot be recognized as diagnostic of the disease, although, as Stengel[18] says, the occurrence of hemorrhages in a long continued anemia without adequate cause would be somewhat significant. They are usually flame-shaped, although they may be round; and seen in contrast with the surrounding fundus, they appear redder than usual. They have at times whitish centres, which is an appearance peculiar to this disease and leukemia. Knies[19] agrees with Horner in considering these white patches to be simply results of a process of absorption, and states that they may be seen in other non-specific hemorrhages. Manz[20] found the pale centre to consist of round, colorless cells, sometimes enclosed in a capsule which was really a dilated extremity of a retinal capillary, while de Schweinitz[21]

thinks that they correspond to hypertrophied and degenerated nerve fibres.

A far more constant symptom than the presence of retinal hemorrhage is the altered color of the fundus reflex, which becomes of a light-yellowish pink or rose tint due to the alteration in the quality of the blood itself. A further change is the appearance of the retinal vessels, which is practically that which was described in connection with chlorosis. As in chlorosis so the inflammation of the retina is usually not severe, generally manifesting itself by a slight swelling of the retina, which obscures the edges of the nerve. At times there may be a bluish-white film over the fundus. As in chlorosis, although retinitis is rare, changes in the nerve are very frequent. Of Horner's thirty cases the disks were quite white in every instance; and in those observed by Norris, in addition to a diffuse retinitis, they appeared dirty white with a faint greenish tinge. At times yellowish-white plaques may be seen in the macular region, giving the fundus the resemblance of retinitis albuminuria, and at times the symptoms may be severe from the beginning, as in a case sited by Sargent,[22] where there was an intense neuroretinitis which led to retinal detachment and blindness.

In regard to the diagnostic value of the retinal changes in pernicious anemia, it would seem that the retinal lesions of pernicious anemia correspond with those observed throughout the entire body, and are usually in keeping with the course of the general disease; thus, Ulrich[23] could find no hemorrhages in the early stages of a case of pernicious anemia, which finally caused death, although late in the disease the typical picture of the retinitis of pernicious anemia with slight hemorrhage presented itself. This agrees, further, with the observations of Mackenzie[24] that the retinal hemorrhage in pernicious anemia is a consequence of the degree of blood poverty, and also with those of Natanson,[25] who thinks that these changes always point to grave lesions in the composition of the blood.

Of great interest from an ophthalmological stand-point, as bearing on the causation of insufficiency of the ocular muscles, is an observation by Fraenkel.[26] In examining the body of a case of progressive pernicious anemia, which died in the third month of the disease, this author found that, while the other muscles of the body were well preserved, those of the eye were pale and flabby and much degenerated. The most striking change in the muscles, however, consisted in infiltration of their bundles with large masses of pigment, which the author believed to be the result of multiple capillary hemorrhages into the bundles, from diapedesis. During life there was no evidence of extraocular palsy, or even insufficiency, but, the author

suggests, that in more chronic cases it is possible that a careful prismatic examination would reveal certain weaknesses in the extraocular muscle balance.

Leukemia.—As in pernicious anemia the ocular changes in this affection are quite common; indeed, they may first call attention to the existence of the disease. In acute cases, hemorrhages into the conjunctiva and eyelids may be the first symptoms (Knies[27]), while the ophthalmoscopic findings are so extensive that they point at once to some grave disease in the vascular system.

Contrary to what one would expect, it frequently happens that there is no change in the color of the fundus reflex. In severe forms of leukemia an orange-yellow color of the fundus may be visible, but this is not the rule, for in the majority of cases there is either a pale-grayish pink color of the fundus (Loring[28]) or no departure at all from the normal red reflex (Hirschberg[29]). In addition to the difference in the frequency in which there is a marked pallor of the fundus, the retinitis of leukemia offers another point of dissimilarity between it and the retinitis of pernicious anemia, and that is, the greater tendency of the latter disease to retinal hemorrhage, for it even occurs in leukemia in cases where the percentage of red blood-corpuscles is greater than in anemia (Gowers[30]).

The retinitis of leukemia may manifest itself either as a hemorrhagic retinitis, which is the more frequent, or by whitish patches. The hemorrhages are usually more or less round, and are scattered through the periphery; at times they have a whitish centre, as in pernicious anemia. Extravasations occasionally occur, and are usually more marked in the periphery or in the macula. They are irregular in outline, and are often so large that they have been mistaken for lymphoid growths in the retina. Hemorrhages into the vitreous have been reported (Saemisch[31]).

The veins are frequently enormously distended and tortuous, whilst the arteries are but little, if at all, changed in their appearance. The blood-columns are usually of a rose tint, especially in the veins.

The disk is often strikingly dull and lustreless, having a dirty white appearance. Neuritis is rare, although there may at times be marked papillitis, as in a case cited by Oeller.[32]

Rarely leukemic neoplasm may involve the orbit and cause proptosis (Birk,[33] Chauvel,[34] and Osterwald[35]).

The choroid is at times infiltrated with leucocytes, when the vessels are much dilated, and the coats enormously thickened. The lachrymal glands may be similarly involved.

The ocular manifestations are seen almost exclusively in the splenic variety of the disease, and occurs in at least one-third of the

cases (Panas[36] and Leber[37]); that it is not present in all cases, however, is attested to by the observations of Knapp and Becker, both of whom have seen many cases without retinitis.

As the lesions involve the periphery, it frequently happens that central vision is not at all affected, whereas, in other cases an early involvement of the macula may lead to such impairment of sight that consultation of an oculist will be necessitated even before the general symptoms have been sufficiently marked to have demanded medical treatment. It sometimes happens, therefore, that the eye specialist is the first to diagnose the existence of the disease.

Purpura.—Hemorrhages into the retina in purpura are not uncommon, but as they are rarely of large size, and vision is but little disturbed by them, they frequently escape the attention of clinicians. The sight, however, may be much impaired, and Ruc[38] ascribes the blindness seen in the cases which were recorded by Riedlinus and Du Toit to retinal hemorrhages. He further gives the notes of a case where there was massive hemorrhages into the retina involving the macula of one eye. Mackenzie,[39] Gowers,[40] and Goodhart[41] have cited similar cases.

Hemophilia.—As yet no cases have been recorded where there were hemorrhages into the interior of the eye as a result of this disease. Disturbances of vision, however, have been cited after profuse hemorrhages elsewhere, which were probably referable to optic atrophy, as in Grossman's[42] case, where double atrophy ensued after violent epistaxis. Priestley Smith[43] has seen an interesting case of profuse hemorrhage from the orbit following an injury of that cavity.

Scurvy.—In this disease the eyes are so deeply sunken and are surrounded by such dark rings that they give an appearance almost characteristic of this disease. As in purpura, hemorrhages are not infrequent into the retina, which become yellower as the disease progresses. As a result of the impoverished supply of nutriment to the retina hemeralopia and nyctalopia are occasional symptoms.

In the rare but interesting manifestations of the disease in infancy Stengel[44] says that edema of the lids has been considered characteristic of the disease by some clinicians.

Hemorrhages into the lids and orbit are also quite common and are at times very striking. Holmes Spicer[45] has reported three cases, where, as a result of profuse bleeding into the orbits, there was great swelling of the lids and protrusion of the globes.

Secondary Anemias.—Simple loss or diminution in the quality of the blood is very rarely followed by ocular changes, the additional predisposing factor of impoverished blood being seemingly required to bring about lesions within the eye. In the hope of arriving at some

accurate figures, regarding the frequency with which changes occur in the eye in the secondary anemias, the author has made a study of a score of cases. As most of those observed by him were adults, and had been exposed to many causes, which might have originated ocular lesions, and which it was impossible to exclude from those due to the anemia, his results were in the main unsatisfactory.

In many cases of anemia resulting from heart- and stomach-diseases, however, pallor of the disk, narrowing of the vessels and lighter blood-columns occurred with such regularity that it suggested that the anemia, which the blood-count showed to be marked in each case was the causal factor. In the majority of the cases, despite extreme pallor of the skin, and a marked reduction in the blood-count (the reduction in red blood-corpuscles being as low as 1,000,000 at times) the fundus was perfectly healthy and quite normal in appearance.

Far different is it in the anemia which occurs after hemorrhages, —especially if they be often repeated,—for in this class of cases ocular changes are not uncommon, but are only seen here also in individuals who are not in a healthy condition, so that, in addition to the loss of blood, there must be some other predisposing factor. Thus vision is rarely if ever affected after hemorrhage caused by traumatism, but occurs at times after venesection. We are indebted to Fries[46] for a valuable compilation of the statistics of visual changes after loss of blood. Of ninety-six cases studied by him, the hemorrhage was from the gastro-intestinal tract in 35 per cent.; from the uterus in 25 per cent. It occurred as a result of artificial bleeding in 22 per cent.; 7.3 per cent. were due to epistaxis; 5.2 per cent. to wounds; in but 1.04 per cent. to hemoptysis, and in 1 per cent. to hemorrhage from the urethra. Jacobson has found changes very frequently after hemorrhage from carcinoma of the womb.

As a rule, the loss of vision does not manifest itself until three or four days after the hemorrhage; it may, however, be immediate. Jaeger[47] says that soon after the loss of blood vision becomes temporarily hazy, this being followed by partial clearing, which is dependent upon improved nutrition of the patient. If the hemorrhage be repeated the amblyopia augments with each loss of blood, until vision is destroyed. In this manner repeated hemorrhages predispose towards ocular changes, even more than copious bleeding; they may, however, be originated by small and apparently insignificant hemorrhages. Fries found that partial or complete recovery of vision occurs in about half the cases. In the remaining cases blindness was complete. Both eyes are usually affected. The prognosis is very bad for sight, especially after hematemesis, complete recovery of vision never having been observed after this form of hemorrhage.

If seen soon after the hemorrhage has occurred, an ophthalmic examination will reveal a diffuse retinitis and a marked pallor of the optic nerve head, the retinal vessels being reduced in size. Other retinal lesions are rare. Knapp[48] has seen but one case, in which curious angioid streaks developed in the retina from previous hemorrhage. Other authors have noted instances where the neuroretinitis was quite intense. The pathology of the ocular condition is still in doubt.

[1] This is accomplished by noting the state of fulness of the retinal vessels, their course, the velocity of the blood-current, as well as by the color of the fundus reflex, for the vascular choroid lies unfolded to the gaze of the examiner, and any change in the constitution of the blood will at once reveal itself in its extensive capillary net-work.

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ALUMNI NOTES.

The Growth of the University in the Last Fifty Years.

The following table, compiled from the University catalogues, indicates the increase in the number of students of each department since 1845:

	College.	Medicine.	Auxiliary.	Dental.	Veterinary.	Philosophy.
1845	462	118				
1850	410	81				
1855	372	113				
1860	465	140				
1865	520	103				
1870	310	187	64			
1875	445	240	110	75		
1878	377	272	151	109	33	
1880	374	296	125	112	42	4
1884	371	381	55	97	70	54
1885	383	380	23	206	61	172
1890	582	479	27	323	50	161
1895	873	871	44	373		
1896	920	917	48			

Medical Alumni Association.

The Philadelphia Local Alumni Association of the Medical Department of the University is now in a vigorous condition, and doing good work in bringing together the alumni in this vicinity. The Ex-

ecutive Committee have compiled a list of graduates killed during the Revolution, and they desire that any information connected with these men be forwarded to the chairman of the committee, Dr. Roland G. Curtin. The following is the list:

1768: John Archer, New Castle, Del.; Benjamin Cowell, Bucks County, Pa.; Samuel Duffield, Philadelphia; Jonathan Elmer, New Jersey; Humphrey Fullerton, Lancaster, Pa.; David Jackson, Chester, Pa.; John Lawrence, New Jersey; Jonathan Potts, Philadelphia; James Tilton, Kent County, Del.; Nicholas Way, Wilmington, Del.

1769: James Armstrong, Josiah C. Hall, John Hodge, John Houston, Thomas Prait, Alexander Skinner, Myndert Vuder, John Winder.

1771: Alison Benjamin, Jonathan Easton, Frederick Kuhn, John Kuhn, Bodo Otto, Robert Pottinger, William Smith.

1773: Thomas Biddle, David Ramsay.

1780: Ebenezer Crosby, John Foulke, William W. Smith.

Dr. F. S. Pearce and the chairman of the Executive Committee of the society have collected the above data, and any information sent to them in regard to these or any other graduates killed during the war will confer a favor upon them.

A Presentation to the Museum.

Dr. E. B. Landis, 88 M., of Chemulpo, Korea, who occupies a distinguished position in the Korean service, has presented his collection of Korean coins to the University Museum. This collection numbers 1650 different specimens, exclusive of duplicates, and is the most important collection of the kind in the world.

Changes in Old Dental Hall.

That portion of the old dental building which has just been vacated by the Dental School in favor of the new building has been put to the following useful purposes: One part of the first floor, formerly the dental operating-room, is to be used as a Physiological Laboratory for practical instruction to students of the Medical, Dental, and Veterinary Departments. Another part will be used for instruction in bandaging, fracture dressing, and surgical operations on the cadaver.

A modern refrigerating plant for preserving cadavers has just been constructed by the side of the vault, in Old Dental Hall, and is now in operation. The ice-machine is run by electricity from the central light and heat plant of the University.

A Large Bequest to the University.

By the will of Eliza W. S. P. Field, widow of John White Field, formerly of Philadelphia, the University became the recipient of $80,000 and upward. Of this sum $50,000 is left in trust for the University Hospital.

Appointments.

Dr. William S. Carter, Class of '90, formerly assistant professor of Comparative Physiology and Demonstrator of Physiology in the University of Pennsylvania, has accepted the professorship of Physiology in the University of Texas, at Galveston.

Dr. William Campbell Posey, of the Class of '89, was elected ophthalmologist to the Epileptic Hospital and Home for Incurables.

Dr. John C. Heisler, of the Class of '87, has been elected professor of Anatomy in the Medico-Chirurgical College, Philadelphia.

Dr. Homer Sylvester, Class of '95, has been elected to the staff of the Emergency Hospital of Milwaukee, Wisconsin.

Dr. John F. Culp, Class of '86, is in Wiesbaden, Germany. He intends to make a prolonged stay on the Continent pursuing the study of medicine.

Information for Graduate Catalogue of Medical Department.

The following information is desired in regard to every graduate of the Medical Department. Any graduate will confer a favor upon the Alumni committee by giving all the information in his possession regarding himself or any deceased graduate:

(1) Name in full.
(2) Father's name and mother's maiden name.
(3) Date and place of birth.
(4) State matriculated from.
(5) Date of matriculation.
(6) Date of graduation.
(7) Title of thesis.
(8) Place of practice and present address.
(9) College attended.
(10) Titles.
(11) Publications and positions held.
(12) If ever in the United States service, state in what capacity. when, and how long.
(13) If married, give maiden name of wife.
(14) Children's names, if any.
(15) If dead, give date and place.

Roland G. Curtin, *Chairman Executive Committee.*
22 South Eighteenth Street, Philadelphia.

EDITORIAL.

THE NEW TUBERCULIN.

In the *Deutsche medicinische Wochenschrift* for April 1, 1897, Koch publishes the method of producing a new preparation of tuberculin which he designates tuberculin R. The old tuberculin consisted of a glycerin extract of tubercle bacilli, and the reaction produced by the subcutaneous injection of this preparation has always been followed, according to Koch, by an unmistakable improvement in the tuberculous process, and this improvement continued until ultimately, in many cases, a period of perfect immunization against tuberculin was secured. This immunization, however, had no effect upon the tubercle bacilli themselves; it was a pure toxic immunity, and not a bacterial immunity. Unfortunately, the reaction against tuberculin was often lost before there was a complete cure of the disease and a relapse set in, which had again to be treated with tuberculin reactions so soon as the capability of reaction was established. Despite the shortcomings of this tuberculin, Koch still believes that it would be the best agent for the treatment of tuberculosis, were it not that he had recently succeeded in securing from cultures of tubercle bacilli a preparation which immunizes the body against the tubercle bacilli themselves.

From numerous experimentations Koch was led to understand that under no circumstances could tubercle bacilli be absorbed in the undestroyed state, but that this desired absorption might be obtained by treating them mechanically. Well-dried cultures were rubbed thoroughly in an agate mortar until there was a diminution in the number of colorable tubercle bacilli, and at last only a few bacilli remained, and these were removed by placing the substance in distilled water and centrifuging it; the fluid could then be separated into a perfectly clear transparent layer which contained no tubercle bacilli, and a solid, muddy sediment. This sediment was again dried, pulverized, and centrifuged as before; and again there was a clear upper layer and the solid deposit. This process was repeated until the whole mass of tubercle-bacillus culture was converted into a series of perfectly clear liquids.

Experiments made upon animals, and later upon man, proved that the preparation thus obtained was entirely absorbable, and never produced abscesses if it had been thoroughly centrifuged and contained no colorable bacilli. The upper layer which resulted from the first centrifuging was designated tuberculin O., while the rest, obtained after the first centrifuging, received the name tuberculin R., or T. R.

The conduct of tuberculin R. in the presence of glycerin shows that it contains essentially the constituents of tubercle bacilli, which are insoluble in glycerin, and which in a glycerin extract remain behind. The tuberculin O. approaches very nearly in its properties to the common tuberculin. The tuberculin R., on the contrary, has decided immunizing properties. It produces reactions in the tuberculous patient when too large a dose is used, but the effect is entirely independent of these reactions. While reactions must be obtained in order to accomplish curative effects with common tuberculin, Koch endeavors, in the use of tuberculin R., to avoid reaction as much as possible and to make the patient insusceptible by gradual increase of the dose, as rapidly as it can be done, it is true, but at the same time to avoid as far as possible the larger doses,—that is, an endeavor is made to immunize the patient against tuberculin R. and the tubercle bacilli. An individual who is immunized against tuberculin R. no longer reacts to large doses of the common tuberculin,—in other words, he is immunized against all the constituents of the tubercle bacilli.

In concluding the paper Koch reports that he has obtained excellent results from the use of the new preparation in tuberculous animals. In phthisical patients he states that the well-known violent reaction of tuberculin, with the temporary infiltration in the diseased lung tissue, was absent. A slight increase in the râles, which speedily disappeared, was, as a rule, the only local symptom attending the use of the tuberculin R. preparation. The sputum diminished after a few injections, and there was a corresponding diminution in the number of tubercle bacilli, which soon disappeared altogether. The râles likewise disappeared, and the region of dulness diminished. The patients began to gain in weight from the beginning, and made essential gains by the end of the treatment.

Since the publication of Koch's paper other investigators have experimented with the new tuberculin, but the results do not justify the hope that an important advance has been made in the treatment of tuberculous affections.

Schultze, of Bonn, reports nine cases of phthisis treated with this new remedy. In several instances the same unpleasant results which

followed the injection of the old tuberculin were noted. In one patient laryngeal tuberculosis developed while under the treatment, and in another intestinal symptoms appeared. In three patients there was some improvement, and in four the symptoms remained the same. In Fraenkel's clinic fifteen patients were subjected to the treatment. In a number of instances severe chills, followed by high fever, resulted from the injection. Of the fifteen patients who completed the course of treatment, seven gained in weight, two remained unchanged, and five lost in weight. Herzfeld, of Berlin, reports seven cases of laryngeal tuberculosis treated with tuberculin R. In one case there was some improvement, but the opinion is expressed that in the other cases better results would have been obtained by the ordinary local treatment. Leick reports fifteen cases of pulmonary tuberculosis in which the new remedy was employed. A marked improvement was noted in two cases. Rumpf reports some favorable and some unfavorable results with the new tuberculin. He finds that it not infrequently causes painful inflammatory infiltration of the skin and high fever, and believes that considerable caution should be exercised in employing it in the treatment of primary localized tuberculous processes of the lungs. While sufficient time has not elapsed to determine the exact value of tuberculin R., the results obtained from its use up to the present time offer but scant encouragement, and, moreover, indicate that the new preparation is not free from the objections which have been urged against the old tuberculin.

THE D. HAYES AGNEW MEMORIAL PAVILION.

The D. Hayes Agnew Memorial Pavilion, constituting the eastern wing of the University Hospital, was formally dedicated on October 15, 1897. Dr. William F. Norris, president of the Board of Managers of the hospital, presided, and after making a few remarks, in which he thanked all those who had interested themselves in the work of the hospital, he formally turned over to the Trustees of the University the new pavilion. Provost Harrison, in accepting the building, said in part,—

"On behalf of the Trustees of the University of Pennsylvania I gratefully accept the completed Agnew Memorial Pavilion of its hospital. In this act the University acquires two things,—one, a valuable addition to its material possessions and facilities for its work; the other, an added measure of responsibility.

"Every acquisition of this kind," he said, "means a necessarily increased annual expense, which is only partly provided for in the

endowments which have been given. It is not enough that the community commend the enterprise and applaud the completed work. It must sustain the work,—provide the machinery with fuel,—and it is only by a steady interest in and contributions to the work that we can use to their fullest capacity the facilities which are here provided."

After a few words from Dr. De Forest Willard, in which he gave an account of the origin and progress of the movement to erect such a monument to the memory of Dr. Agnew, Dr. J. William White delivered the memorial address, for which honor his close connection with Dr. Agnew well qualified him.

The building, which is four stories in height, is of ornamental red brick, terra-cotta, and tiling, and forms a companion wing to the William Pepper Laboratory, the latter constituting the western end of the hospital and the former the eastern wing, near Thirty-fourth Street. Both are connected with the main building by passage-ways so arranged as to be used as sun-parlors. The total cost of the new wing was $160,000.

In the pavilion are three amphitheatres and five departments, including the children's, general surgical, ophthalmological, gynecological, and otological. In all there are 160 beds, making the total capacity of the hospital 350 beds. Each ward is furnished in accordance with the most advanced ideas of hygiene as regards lighting, heating, and ventilation.

Vivisection.

An editorial in the *Open Court* of June, 1897, is so full of good sound arguments that we quote the closing paragraphs.

"There is a great field for the humane societies, and they can do a noble work by elevating mankind and refining its sentiments, and also by protecting the dumb creation against the cruelty of savage masters. We are with them in all these worthy endeavors with heart and soul. In addition, they may set their face against any kind of vivisection performed by those not called upon, but when they begin to meddle with science and forbid the physiologist to investigate life in the living animal, it is time to pronounce the *quousque*.

"Vivisection, *if strictly kept within the limits of its important purpose*, is a moral obligation; and he who would hinder the physiologist in the performance of his duties makes himself guilty of immoral conduct; but any cruelty to animals—viz., every lack of respect for life, every thoughtless or wilful infliction of pain, every delight taken in torturing, injuring, or destroying sentient beings—is a crime that should be denounced and reprimanded, and, if necessary, checked by the power of law."

MEDICAL PROGRESS.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM PEPPER, M.D., LL.D., AND JAMES TYSON, M.D.,

ASSISTED BY

M. HOWARD FUSSELL, M.D., AND A. O. J. KELLY, M.D.

Influenza.

A. Fraenkel (*Berliner klinische Wochenschrift*, April 12, 1897) commenced a study of some of the complications of this disease. He first refers to a case in a girl, aged 24 years, who, shortly after an attack of acute rheumatism, was readmitted with high fever, irregular and rapid pulse, marked dyspnea, and earthy appearance. At the necropsy there was an influenzal broncho-pneumonia, in the foci of which numerous influenza bacilli were found. The author then refers to putrid pleurisy and complications involving the vascular system in influenza. Influenzal pneumonia may terminate in gangrene. There is almost an entire absence of fibrinous exudation in this form of pneumonia. Frequently there is no rusty sputum. Fraenkel does not deny the frequency of a mixed infection with the pneumococcus in influenzal pneumonia where the influenza prepares the way for this latter micro-organism. It is not obvious why the influenza bacillus does not produce a fibrinous inflammation. When influenza epidemics prevail there is often an increased frequency of genuine pneumonia which stands in no direct relation with the influenza. In pulmonary gangrene in influenza the marked leucocytic infiltration leads to a breaking down of the lung tissue. In some cases the hepatized lung is studded with small foci of softening. In the question of mixed infection it must be remembered that micro-organisms, not usually pyogenic, may at times produce pus, and this would not be surprising in the case of the influenza bacillus. If breaking down foci abut on the pleural cavity, they may rupture into it and produce a sudden pneumothorax. The symptoms of pneumothorax may not be prominent here or may even be absent, whereas symptoms of the putrid pleurisy appear. Among 272 cases of influenza in the author's clinic eighty had symptoms of broncho-pneumonia, and six of these had pulmonary gangrene, once with symptoms of pneumothorax. Fraenkel draws attention to (1) the astonishing rapidity with which the pulmonary gangrene and consequent rupture into the pleural cavity may occur, and (2) the characteristic set of symptoms indicating the latter, which may permit of a probable diagnosis before the pulmonary gangrene is obvious or exploratory puncture settles the question. He refers to three cases recorded by Rhyner. In one symptoms of pneumonia appeared on the sixth day of the disease, and on the same evening the breath was fetid, and on the next day

there was putrid expectoration. In the second case pneumothorax appeared on the twelfth day, and in the third on the twentieth day. The author himself records two cases in which the putrid pleurisy appeared very suddenly, and in one case at least very early in the disease. In both cases the empyema was quickly opened, and recovery ensued. In one case one-half litre of stinking pus was also expectorated.

The Medical Aspects of Appendicitis.

Hood (*Lancet*, September 18, 1897) believes that we are in danger of looking upon appendicitis from too purely a surgical stand-point. The cardinal points in diagnosis are pain, fever, local tenderness, and immobility of the abdominal walls. Vomiting was present in 208 out of 306 patients; it bodes neither good nor ill.

He has treated forty-five patients medically with but one death. In that case general peritonitis was present, and operation was not deemed advisable. His treatment is liquid diet and opium with complete rest.

This article is quoted as one which is much more conservative than any held in this country.

A Novel Method for the Use of Dry Heat in Middle-Ear Disease.

Vansant (*Journal of the American Medical Association*, October 2, 1897) says that the applications of dry heat to the ear by means of salt-bags, bran-bags, etc., while valuable, lose much of their efficiency because the heat is applied so far away from the seat of disease. He has modified a dental instrument so that dry heat may be applied directly to the tympanic membrane.

It consists of a metallic bulb or barrel containing a piece of carbon, a rubber hand-ball air-compressor, and a long, curved, pointed, steel nozzle. The bulb is heated sufficiently by being held over a flame, preferably that of a spirit-lamp; a current of air is then forced through it by means of the hand-ball, thus delivering the air from the point of the instrument which is directed against the spot which is to be treated. The degree of heat can be regulated by the length of time the bulb is held over the flame, and also by the distance between the mouth of the nozzle and the surface towards which the heat is directed. A hard rubber speculum can be used through which to direct the current of air.

In otalgia of all kinds the writer has found it of great value in promptly relieving the pain.

In the dry treatment of otorrhea it is also of value, the ear being first thoroughly cleansed and the surface then dried with the instrument.

The effect upon acute otitis media is not yet sufficiently tested.

Nocturnal Frights in Children.

Brann contributed to the *Journal de Clinique et de Thérapie infirme* (No. 6, p. 115, 1897) from *Jahrbuch für Kinderheilkunde*, January, 1897 (*American Medico-Surgical Bulletin*, September 25, 1897), the following opinions: They are manifestations of neurasthenia in children, a less rare condition than is generally supposed. The pathogenesis and etiology are differently interpreted by

authors; but all agree that it is a condition of nervous children whose nervous system is weakened by hereditary defect or by acquired depreciation.

The sleep of these children is frequently interrupted by starts of alarm; the sleep is restless; the children move about a great deal and frequently change their position. They emit complaints which healthy children do not in their sleep. Their restless moving may or may not be interrupted by sudden awakening. Their sleep also, like that of neurasthenic adults, does not come easily until after long periods of sleeplessness. The deeper the sleep the less dreaming; hence their sleep is disturbd by dreams. All authors agree in this. Other symptoms common to them and adult neurasthenics are palpitation, cephalalgia, and fatigue on slight effort. We know, besides, that neurasthenia is due to a diseased nutrition of the nervous system, chiefly anemia. Anemia is frequently met with in children subjects of this condition. We also know that certain affections, notably diseases of the digestive tract, which cause anemia, are often the cause of these nocturnal frights. The author refutes the idea that the nocturnal fright is a psychic malady: it is a neurasthenic state. When attacks are frequent, the author employs bromide of potassium, chloral, and quinine; when very frequent, quinine has been most serviceable,—gr. ss to gr. iss per day. Warm baths 29° to 32° C. (82° to 89° F.) are useful. Stimulating baths are contraindicated. Iron is used.

Orthoform.

Orthoform (*Semaine Médicale*, September 1, 1897; *Journal of the American Medical Association*) is absolutely non-toxic; applied as a powder, it produces a slow, progressive anesthesia wherever there is a solution of continuity lasting hours and days. It has no effect upon the sound skin; but in burns, wounds, fissures, etc., it abolishes sensibility, diminishes the secretions, and produces an antiseptic effect. In combinations with hydrochloric acid it forms a soluble salt, which can be administered internally, one-half to one gramme several times a day, to remove the pain in cancer and round ulcer of the stomach.

Digestion versus Drugs in the Treatment of Pulmonary Tuberculosis.

Fisk (*Transactions of the American Climatological Association*, 1897) again inveighs in his forcible manner against polypharmacy and useless drug-giving in cases of phthisis. He believes that digestion should be protected at all hazards. Frequently he has seen a patient taking many drugs and failing rapidly because they had no appetite and could not digest what they ate, improve rapidly when the digestive track was cleared by the use of calomel.

By digestion he means the ability to eat, to assimilate, and to eliminate,—in short, to nourish properly.

Ulcerative Endocarditis.

Washburn (*Lancet*, September 18, 1897) cites a case of fever lasting from January 27 to March 16, in which a diastolic bruit made its appearance on the last date, and for which reason the diagnosis of ulcerative endocarditis was made.

On March 24 injections of antistreptococcic serum were made, and con-

tinued nine weeks,—1030 cubic centimetres of the serum being used; through the case the cardiac symptoms remained in the background.

The case entirely recovered, with a pulmonary regurgitation.

Erb's Paralysis.

Sinkler (*Medicine*, August, 1897) reports the case of a child who injured himself by "skinning the cat" on a trapeze. At the time of the act the child did not complain of pain, but about one month afterwards he was affected by general nervousness of the emotional kind. About two months later it was noticed he did not use his right arm properly. On examination there was found that the left side of the face was smaller than the right; there was no loss of power on that side of the face. The pectoralis major was wasted, but there was no loss of sensibility. All the shoulder muscles were atrophied. All the reflexes were normal.

There had no doubt been an injury done to the roots of the cervical nerves while the child was hanging by the arms.

THERAPEUTICS.

UNDER THE CHARGE OF

HORATIO C. WOOD, M.D., LL.D., AND ARTHUR A. STEVENS, M.D.

Arsenic and Belladonna in Chorea.

Overend (*Lancet*, July 31, 1897) has successfully employed arsenic and belladonna in the treatment of twenty-five cases of chorea. The observation of the cases, the author states, gives the impression that large doses of arsenic have a beneficial influence in subduing the movements, and this is best seen after the movements have existed for some time,—weeks or months,—that is, when a cure seems almost hopeless. The drug should be given after food, and the patient should lie down for half an hour afterwards in order to avoid nausea. The phenomena of chorea, Dr. Overend says, appear to be due to a nutritive and functional disturbance or ataxia of the higher nerve centres. Post mortem, a general tendency to dilatation of the smaller arteries within the substance of the brain accompanied with exudation is observed. This appears more especially in the corpus striatum and the regions supplied by the middle cerebral arteries; in other words, there is pronounced hyperemia of these nerve centres. It is probable that the chief stress falls upon the Rolandic areas. Such vasomotor ataxia might be induced by reflex disturbances arising within the digestive tract, by uterine irregularities, or by emotional disturbances. In the rheumatic diathesis the toxin may attack the motor centres directly.

In conclusion, he says: (1) Belladonna appears to be most beneficial in recent cases, and its influence is sometimes very marked in severer forms. (2) In obviously rheumatic cases arsenic in large doses may be given a trial or may

be combined with belladonna from the first. Belladonna may act by diminishing the excitability of the nerve-centres or by imparting an improved tone to their vascular supply. (3) In the wards of a hospital it is perfectly justifiable to give to a child as much as thirty minims or more of tincture of belladonna every four hours for ten days or even longer. Certain precautions are necessary. The patient should be kept in bed and the urine should be daily measured. Small doses of potassium acetate may be added if it becomes much diminished or if the eyelids show any puffiness. In one child nocturnal incontinence occurred, and the dose was lessened. The occurrence of the papular erythema, which leaves raised circular lumps for a time, does not demand any diminution of the dose. Dryness of the throat and swelling of the parotids, should they occur, are merely temporary. The influence of the belladonna makes itself felt after about four days. Should no visible improvement occur before the tenth day it would be useless to continue with it. But in all the eight severe cases already referred to belladonna was of benefit, and is certainly worthy of further trial. As soon as the movements become trivial or occur only during exertion it is better to omit the belladonna, to begin massage of the affected muscles, and to administer cod-liver oil and syrup of phosphate of iron or other tonics. The use of arsenic may be continued for a week or longer.

Cardiac Arhythmia.

Huchard (*La Médecine moderne*, March 17, 1897) discusses the treatment of this condition. Cases of arhythmia, arising from the excessive use of tobacco, alcohol, or coffee, are to be relieved by the regulation of the diet or drink. In tobacco heart there are frequently evidences of pseudo-angina pectoris. In some cases the arhythmia can be cured by the removal of reflex irritation, such as gastro-intestinal disease, hepatic or uterine affections. In those cases in which there is organic disease of the heart, it will often be found that the gastric disorder results from imperfect circulation. Even in these cases much is to be accomplished by regulating the diet and administering hydrochloric acid or alkalies, according to whether there is hyperacidity or hypoacidity of the gastric juice. In nearly all of these cases, unless there is great cardiac weakness, digitalis is not only contraindicated but may aggravate the condition by disturbing the stomach. Many cases are more benefited by potassium bromide and atropine than by digitalis. In ordinary intermittent heart digitalis is almost always useless. In a second group of cases digitalis and other cardiac tonics are to be recommended. These are the cases in which the symptoms are permanent, and in which there are arterial changes and mitral regurgitation. When, however, the cardiac muscle is seriously affected, strophanthus will be found more useful than digitalis. In the arhythmia of the aged digitalis must be used with caution, on account of weakened condition of the blood-vessels. When it is not advisable to employ digitalis, sparteine (one-half grain to one grain several times daily) may be given, blood-pressure being at the same time reduced by a milk diet and the administration of nitroglycerin. When there is marked degeneration of the heart digitalis is of little value, but in these cases the arhythmia is sometimes much benefited by an absolute milk diet. Finally, there is another group of cases in which the arhythmia is associated with high arterial tension from arterio-sclerosis. In these cases digitalis rarely does good, at least until the tension of the pulse is considerably

lowered by the use of nitroglycerin. In all cases the regulation of the diet and the maintenance of a normal digestive action is essential to a successful result.

Disinfection of Typhoid Excreta.

W. Gilman Thompson (*Albany Medical Annals*, April, 1897) concludes as follows: (1) The best disinfectants of typhoid stools for practical use are: (*a*) 1 to 500 acidulated solution of corrosive sublimate; (*b*) 1 to 10 crude carbolic-acid solution; (*c*) chlorinated lime. (2) Owing to the possibility of injury to plumbing, the carbolic-acid solution is preferable wherever plumbing is concerned. The lime is best for country use in privies and trenches. (3) The disinfectant should be thoroughly mixed with the stool and left in contact with it for fully two hours. Enough of the disinfectant must be added to cover completely the stool with the solution. (4) The bedpan should be kept ready filled at all times with at least a pint of the disinfectant, into which the stool is at once discharged, and should be cleaned with scalding water and one of the disinfecting solutions. (5) Rectal thermometers, syringes, tubes, and all utensils coming in contact with any of the fecal matter, must be disinfected with the corrosive-sublimate or carbolic-acid solution. (6) After each stool the patient's perineum and adjacent parts should be washed and sponged with a 1 to 2000 corrosive-sublimate solution. (7) Nurses and attendants should be cautioned to wash their own hands thoroughly and immerse them in a 1 to 1000 corrosive-sublimate solution, after handling the bedpan, thermometer, syringe, or patient, or giving sponge- or tub-baths. (8) All linen and bedclothing used by the patient should be soaked in a 1 to 20 carbolic-acid solution and subsequently boiled for fully two hours. (9) Disinfection of the stools should be begun as soon as the diagnosis of enteric fever is established, and should be continued for ten days after the temperature has remained at the normal. (10) In localities where a proper drainage system is lacking, the stools should either be mixed with sawdust and cremated, or buried in a trench four feet deep after being covered with chloride of lime.

Argonin in Gonorrhea.

Christian (*Therapeutic Gazette*, July 15, 1897) has employed argonin in the treatment of ninety cases of gonorrhea; of these eighty were acute. No other drug but argonin was used, and that was ordered in five-per-cent. solution, to be used by the patient as a hand injection; the fluid being held in the urethra five minutes after each injection. The following conclusions as to the value of the drug are drawn:

(1) That it is absolutely unirritating and can be used in solutions from one to ten per cent.

(2) In the great majority of cases it lessens the discharge very rapidly.

(3) Its use is generally followed in a short period by a disappearance of the gonococci.

(4) That this disappearance of the gonococcus is not in all cases permanent; in other words, there is in quite a large proportion of cases a distinct tendency to relapse, with reappearance of gonococci.

(5) That it possesses distinct value as a hand injection in the stationary

period of the disease, but is of very little benefit in the mucous stage, or stage of decline.

(6) It produced no results in the treatment of chronic anterior urethritis.

Should the price of the drug ever admit of its being used in irrigation of the urethra it may possibly be found to be of still greater value.

The Treatment of Syphilis.

Whitla (*British Medical Journal,* September 18, 1897) discussed this subject in a paper read at the recent meeting of the British Medical Association. He said that two drugs alone need be considered,—mercury and the iodides. He regarded it as proved that mercury had a specific or curative effect on syphilis, and thought it best to limit his remarks to the following points: (1) How mercury and the iodides were supposed to act; (2) when should mercurial treatment be started, especially should it be given in the primary stage? (3) the various methods for its routine administration, its dosage, and the length of time necessary for mercurial treatment; (4) the treatment of tertiary symptoms and congenital syphilis. The pharmacology of mercury—the mode of absorption, especially when administered by inunction, elimination, etc.—was considered. Mercury he regarded as a vital antidote to the syphilitic poison, and so long as the virus of syphilis remained in the organism mercury, he believed, would expend its force upon it without injury to the patient. This, he thought, gave a working hypothesis as regards dosage. The question of the bactericidal power of iodides in connection with Binz's view was dealt with, and their inutility in the first and early second stages emphasized. The continuous and interrupted methods of administering mercury were treated at length, although it was stated that these could not be rigidly separated. The continuous method was favored by the speaker. He prescribed small doses as early as possible. Routine treatment was deprecated. As a guide determining the effect of the mercury, the weight chart was strongly recommended. Of the various modes of administration the method of inunction was most generally useful, although this possessed many disadvantages. Under ordinary circumstances small doses of mercurious iodides, Plummer's pill, etc., were sufficient. In the tertiary stage, Dr. Whitla advised pushing the iodides until the symptoms abated. He believed that the whole secret of success in the treatment of syphilis was to get as much mercury into the system as possible without producing ill effects. He had not seen one case of harm resulting from the use of mercury in syphilis in his own practice.

Oil of Turpentine as a Remedial Agent.

Walker (*Boston Medical and Surgical Journal,* July 29, 1897) read a paper on this subject at the recent meeting of the American Climatological Association. He dwelt especially upon its effects in catarrhal affections and as a hemostatic where the lesion was in the mucous membrane. In gastric ulcer, whether for its influence on the ulcerative process or as a hemostatic, it ranks, *par excellence,* both for efficiency and acceptability by an irritable stomach. Given in small doses, two to ten drops in water, sweetened by the oleosaccharatum anisi, each dose prepared as taken, its acrimony is avoided, and the most sensitive stomach will retain it. In catarrhs, subacute or chronic, whether

in stomach, bowels, or bronchial tubes or urinary tract, as a stimulant, attractive, reaching every mucous membrane of the body either in its ingestion or elimination, its virtues are invaluable, modifying secretion and influencing cell nutrition. In the winter coughs of the aged and infirm, its general stimulant action is an additional advantage to its local effect.

The Action of Taka-Diastase in Various Gastric Disorders.

Friedenwald (*New York Medical Journal*, May 29, 1897) has undertaken a series of experiments in order to determine the value of taka-diastase in various gastric disorders. His conclusions are as follows:

(1) That taka-diastase exerts no influence under normal conditions upon gastric digestion nor upon cases of nervous dyspepsia with normal motor and secretory functions.

(2) That in cases of motor disturbances of the stomach with normal secretory functions, such as atony, taka-diastase increases the motor action without in any way influencing the secretory function or the digestion of starches.

(3) That in cases of subacidity taka-diastase acts differently, according to whether there is a catarrh or a nervous dyspepsia. In nervous cases it has no effect whatever upon digestion, while in cases of catarrh it appears to have a tendency to increase the flow of acid and promote the digestion of starches.

(4) That taka-diastase exerts its most favorable influence in cases of superacidity. It not only promotes the digestion of starches in these cases, but diminishes the excess of acid and increases the motor function.

(5) That taka-diastase in a great measure replaces the saliva when this secretion is diminished or absent. It then not only digests the starches in the stomach, but serves the other function of the saliva in stimulating the gastric secretion, and therefore promoting the proteid digestion.

Holocaine.

Hering and Schlosser (*Klinische Monatshefte für Augenheilkunde*, April, 1897; *British Medical Journal*, May 8, 1897) report on this new local anesthetic, which is the chloride of p-diethoxythenyldiphenylamidine; the latter is allied to phenacetin. The salt is crystalline, and of neutral reaction, soluble with difficulty in cold water, easily in hot water, but recrystallizing from solutions stronger than two per cent. A one-per-cent. solution dropped into a rabbit's eye causes no irritation; full anesthesia is obtained in from fifteen to twenty seconds, and lasts from twelve to fifteen minutes. In dogs, full anesthesia is obtained in forty seconds, and lasts twenty minutes or more. The anesthesia is due to paralysis of the sensory nerve endings, and not to ischemia. Holocaine has no effect on the pupil, on accommodation, or on the blood-vessels. It is detrimental to the lower forms of life (protozoa), inhibiting their movements, and, in fact, showing itself to be a protoplasmic poison. It has the same effect on bacteria. If the hot solution is put into a glass vessel, after some hours a deposit forms, owing to alkali freed by the hot water from the glass. If the glass is first thoroughly washed out with distilled water, this can be avoided; or porcelain vessels can be used. As the solution is antiseptic, it need not be sterilized by boiling. When absorbed, it has poisonous effects analogous to those of strychnine. The toxic dose for a mouse is 0.015

of a grain subcutaneously; for a medium-sized rabbit, from 0.15 to 0.225 of a grain. For ophthalmic practice a one-per-cent. solution is recommended, one or two drops of which will produce analgesia in forty or fifty seconds; if one or two drops more are now instilled, in thirty seconds full corneal anesthesia will be obtained. When first instilled it causes some burning sensations, which, however, pass off in from thirty to forty seconds; also slight conjunctival injection, passing off in from one to two minutes. Anesthesia lasts at least ten minutes. In the rabbit a one-per-cent. solution colored with methylene blue has been injected into the anterior chamber without irritation or inflammatory or other effects; and the solution has also been employed in operations involving an opening into the eye; its anesthetic effect on the iris would seem to be quite as complete as on the cornea, and no poisonous effects from absorption have been observed. It has not been employed subconjunctivally. Like cocaine, it causes some unevenness of the corneal epithelium in rabbits, but this has not occurred in man. Holocaine would appear to be less likely than cocaine to injure the epithelium, as it does not constrict blood-vessels, so that the corneal lymph circulation ought not to be impaired. Its speedy action is also in its favor.

OBSTETRICS.

UNDER THE CHARGE OF

BARTON COOKE HIRST, M.D.,

ASSISTED BY

W. A. NEWMAN DORLAND, M.D.

Indications for the Induction of Abortion.

Jeffé (*Medicinische Neuigkeiten*) fixes the indications for the induction of abortion as follows: (1) Uncontrollable vomiting of pregnancy; (2) incarceration of the gravid uterus; (3) obstructions of the pelvic outlet, as by tumors or exudates; (4) progressive and pernicious anemia; (5) grave chorea. He gives the following relative indications: (1) Great contraction of the pelvis with the conjugata vera below five centimetres; (2) pulmonary emphysema, with signs of degeneration of the heart; (3) nephritis, especially with eclampsia; (4) chronic heart-disease; (5) other general diseases of the mother that would jeopardize her life at the time of delivery. Jeffé thinks that a true conjugate of six centimetres and advanced pulmonary tuberculosis should not be regarded as indications for abortion, as it is not just to sacrifice a future life for one that is "certainly lost."

Rupture of the Uterus during Labor.

Rein (*Wratsch*, 1896, No. 6) reports the case of a woman, 21 years of age, who was twice delivered normally. Five hours after the beginning of labor-pains, in the third pregnancy, the membranes ruptured, and the cord and right hand prolapsed. An ignorant midwife made traction upon the prolapsed cord,

whereupon the woman complained of severe pain and became unconscious. Three hours later the woman was transferred to the clinic, and an abdominal section performed. A fetus, placenta, and large mass of blood-clot were found in the abdominal cavity. There was also discovered an extensive laceration of the anterior uterine wall, extending into the left broad ligament and vagina. The uterus was removed, the stump treated by the extraperitoneal method, and the patient recovered.

Etiology of Abortion and Premature Labor.

Romheld (*Centralblatt für Gynäkologie*) has made an investigation of 225 cases of premature termination of pregnancy, and has reached the following conclusions as to the causes: Syphilis is the most important cause, and is accountable for 27 per cent. of the cases; retroflexion of the uterus is accountable for 18 per cent.; chronic metritis and endometritis, 10 to 15 per cent.; uterine fibroids, 4.7 per cent.; abnormal conditions of the placenta, 4 per cent.; anteflexions of the uterus, 3.5 per cent.; molar pregnancy, 1 per cent.; Bright's disease and lateral deviations of the uterus, 5 per cent.; constipation and anemia are predisposing causes; heredity does not appear to have much influence.

Version or High Forceps-Operation.

Schultze (*Zeitschrift für Geburtshülfe und Gynäkologie*, Band xxxiv, Heft 2, S. 174), as a result of his large clinical experience, formulates the following rules of guidance in the choice of version or the high forceps-operation in cases of contracted pelvis: (1) Instead of prophylactic version expectancy should be observed. (2) If the amnion has not ruptured, or immediately after the escape of the liquor amnii, version should be performed when there exists an indication to immediately terminate labor. (3) If the liquor amnii has been lost for some time, the high application of the forceps is to be preferred to podalic version. If, under these circumstances, the os uteri is not sufficiently dilated and immediate termination of labor is indicated, dilatation should be facilitated by multiple incisions or by means of Barnes's rubber bags. (4) The high application of the forceps may be successfully practised in moderately contracted pelvis if the os uteri is sufficiently dilated. (5) If the degree of pelvic contraction is considerable, the high application should be only tentative. In its failure, perforation of the head will be indicated. (6) The high application of the forceps does not demand the same skill as version in order to bring about a successful result for mother and child, but does require dexterity.

Sudden Death in the Puerperium.

Goltman (*Memphis Medical Monthly*, April, 1897, p. 145) reports two cases of sudden death during the puerperium, both the result of pulmonary embolism, secondary in one case to varicose veins, and in the other to cardiac thrombosis. He believes that pulmonary embolism is the cause of death in most of these cases, and cites as predisposing influences phlebitis, varicose veins, prolonged labor, hemorrhage, anemia, sepsis, carcinoma, and syphilis. In the

presence of peripheral thrombosis, the patient must be kept absolutely at rest, especially during the second and third weeks of the puerperium, since this is the time at which the clots disintegrate. He believes that sudden death from air-embolism in the puerperium is of doubtful occurrence from physiologic, pathologic, and rational points of view. Shock may be both a direct and an indirect cause of death in the puerperium, and should be guarded against. Organic heart-disease and renal disease are capable of causing death at any time, and these must not be overlooked during the puerperium.

Labor in a Case of Complete Transposition of the Viscera.

Bodon (*Centralblatt für Gynäkologie*, No. 20, 1897) reports a case of labor in a young biparous woman with total transposition of the viscera. The heart, spleen, and stomach were on the other side. The aorta lay to the right of the spine. The rectum was on the right side, and the cecum on the left; and the liver was also on the left. During pregnancy it was noted that the uterus deviated to the left side; and the organ was rotated so that the anterior aspect turned towards the left. The woman was not left-handed, and the right arm was stronger than the left. The labor took place without difficulty, but it was noteworthy that the fetus presented in R. O. A. position. There was no transposition of the viscera in the infant.

Pregnancy after Hysteropexy.

Gibert (*L'Obstétrique*, March 15, 1897) is of opinion that ventral fixation of the uterus entails no trouble should pregnancy occur, provided that the anterior and upper part of that organ be fixed to the abdominal walls. The common error of operators is to fix the top of the fundus at the level of the insertion of the tubes, low down and close over the bladder. The cervix is thus brought upward, lying unnaturally high and very far back. When pregnancy occurs it is only the posterior wall of the uterus that can develop. In one case, where the fundus was thus fixed, the fetal head lay in a natural attitude, though the height of the cervix was awkward for the obstetrician. The shoulders, however, lay in a big pouch to the left, separated from the head by a kind of spur. This pouch was the left half of the back of the uterus, which had developed very irregularly. Turning was effected with difficulty; as the shoulders were delivered the uterus straightened itself, and it was found afterwards that it had broken away from its adhesions. The child was saved. When the front of the uterus is well opposed to the parietes, the entire organ can develop during gestation, the cervix is not inconveniently placed at labor, and the anterior adhesion remains intact after delivery. Gibert describes a case in which this satisfactory result ensued. Involution was rapid, whilst in the first case the detached uterus apparently maintained its deformed condition.

Fifteen Symphyseotomies.

Pinard (*Annales de Gynécologie*, No. 47, 1897) states that during the year, ending December, 1896, ninety-five patients, who had some pelvic abnormality, were confined in the Baudelocque Clinic. Of these ninety-five cases, sixty-eight were delivered spontaneously, while in twenty-seven cases operative inter-

vention was found necessary. Fourteen cases were treated by symphyseotomy. In seven instances the operation was done upon primiparæ, and in seven upon multiparæ. In one case the presentation was vertex. All of the patients had rachitic pelves, and one had, in addition, luxation of the hip-joint. After the operation, thirteen of the children were extracted by forceps and one by version. The results were: in fourteen cases, twelve mothers and ten children recovered; two women and four children perished. Of the fatal cases among the mothers, one died of pneumonia, the other of streptococcus infection; autopsies having been held in each case. The infant mortality was largely due to aspiration pneumonia.

GYNECOLOGY.

UNDER THE CHARGE OF

CHARLES BINGHAM PENROSE, M.D.,

ASSISTED BY

H. D. BEYEA, M.D.

Surgical Treatment of General Peritonitis originating from the Female Genital Organs.

Winckel (Twelfth International Medical Congress at Moscow, August 19–20, 1897; *Centralblatt für Gynäkologie*, No. 38, 1897) thinks that the surgical treatment of general peritonitis, arising from the female sexual organs, is deserving of a more widely extended use than it has received up to this time.

As an indication for operation hitherto only particular kinds of this inflammation—namely, tubercular and that arising from perforation—have been universally recognized. The methods of operation in these forms of peritonitis are still, particularly as regards the location, size of the cut, toilet of the abdomen, drainage, and after-treatment, very different.

The method of surgical interference depends upon the cause of the diffuse peritonitis,—which he divides into tubercular, post-operative, gonorrheal, puerperal, and perforative.

Concerning the statement that tubercular peritonitis—in all its forms, serous, seropurulent, and dry—is curable by abdominal laparotomies, he considers that the hitherto reported very favorable results of operative interference (70 to 80 per cent. being cured) are still not free from the objection that the greater part of the cases have been reported too short a time (from one-half to one year).

He recommends that cure should first be spoken of, if five years after operation it can be positively stated by a competent judge that there has been no return.

The factors of healing in tubercular cases are: emptying of the exudate, unburdening of the peritoneum and intestines, and the improvement of respiration and circulation.

Operation.—It is best to make the incision below the navel in the middle

line, or parallel to it through the left rectus, from ten to twenty centimetres long. Whether irrigation after emptying the exudate is better or not still remains to be seen; likewise, whether washing out with a medicated solution, or only with hot sterilized water should be recommended. Resection of separate organs is only advisable in parts which are easily removed, as the tube and ovary.

Drainage of the abdominal cavity should be omitted, and the wound entirely closed with layers of sutures, the peritoneum being closed with running catgut. On return of the affection there should be a repetition of the operation in the old scar.

Vaginal celiotomy is not proper for tubercular peritonitis. The after-treatment consists in sealing the wound, and the usual abdominal bandage.

Conservative Treatment in Diseases of the Adnexa.

L. H. Stratz (s Gravenhague: *Nederl. Tijdesche. v. Geneeskunde*, 1897, Mai 15; *Centralblatt für Gynäkologie*, No. 35, 1897) reports seventeen cases of diseases of the adnexa, all treated by laparotomy. In five of these the appendages on one side only were affected, and one death occurred from rupture of a pus-sac during operation; the other four recovering. Three of the cases, however, aborted.

Of seven cases in which the adnexa on both sides were affected, two with gonorrheal pyosalpinx, but with no further complication, recovered health only after several years. The other five were entirely well within a few months after operation. Of these latter cases, two were tubercular.

Of five cases in which the adnexa were diseased as a direct result of gonorrhea, health was restored only in from four to five years after operation.

Up to the present time he has never performed vaginal hysterectomy, except for carcinoma of the uterus; but in old and persistent cases, resulting from gonorrhea, as a last resort, he would perform the Doyen-Péan'sche operation.

In following conservative treatment he has found the greatest benefit derived from gynecological massage, the point being to massage for short periods, and frequently,—at first locally, followed by abdominal massage, and then massage of the entire body for fifteen or twenty minutes, using in conjunction resorbant tampons. When this course cannot be followed thoroughly, it should not be attempted. It is of no use for retroflexion or prolapse. He has frequently gotten good results from vaginal tampons (glycerin, ichthyol) and hydrotherapy.

Concerning Chorion Epithelium.

Johansen (*Monatsschrift für Geburtshülfe und Gynäkologie*, Band v, Heft 4; *Centralblatt für Gynäkologie*, No. 33, 1897), after a short reference to the importance of the numerous works at hand on this subject, together with their partially contradictory conclusions, prefaces his article with the two questions, "Does the stroma of the chorion and of the zotten possess a covering of two genetically different layers?" and, "From whence arises this covering?"

After his examination of two primitive uteri and two gravid tubes, he comes to the conclusion that the cellular layer of the chorion is not constantly double; that the two, as Kastschenko has already maintained, have a common

origin, and that this origin is the matrix of the uterus; and, indeed, that the layer is developed not from its epithelium, but from the connective tissue, which therefore permits the origin of the syncytial layer as well as the cells forming the pillars. The proof appears to him, therefore, to be particularly in favor of origin from the maternal vessels.

From this view follows naturally the further one, that the much disputed about deciduoma malignum begins as a decidual cell sarcoma.

In his examination he makes use of sections, and those of his chief, Werth, already described in his work on "Regeneration of the Uterine Epithelium," stained by van Gieson's method. There are adjoined two plates with colored illustrations.

When to amputate in Preference to the Usual Operation for Lacerations of the Cervix Uteri.

T. A. Emmet (*American Journal of Obstetrics*, June, 1897), in a paper upon this subject, read before the American Gynecological Society, on May 6, 1897, stated that his operation had now been practised thirty-five years; that it had been so well tested that its usefulness demanded no defence. When properly performed in suitable cases it gives the best results. There were, however, certain conditions which might be remedied better by another operation. For a long time he had thought that careful local and general treatment could cause complete involution, but he now believes that some cases were better treated by amputation and careful after-treatment. This latter was very important. The stump should not be left to cicatrize. In cases where the nutrition might be so much impaired that no cure could be obtained until the local cause had been removed, in these early surgical treatment was demanded. The patient should first be given the benefit of local treatment and the cervix saved, if possible. When the accepted operation could be employed with success it should be performed, but the long existence of local changes might contraindicate it. Preparatory treatment was most important, and the final result depended upon it. When scar tissue had been removed in operating, the flaps sometimes could not be apposed well because of cysts, but their puncture would often obviate the difficulty. In many cases that it was wrong to shut up such diseased tissue from drainage marked reflex symptoms would frequently follow, and the uterus increase in size. When the cervical tissues were soft and friable the need of amputation might not be recognized until trachelorrhaphy had been begun, and would not be appreciated even then by the average operator unless he went sufficiently deep. Dense tissue was found by deep incision, and might be removed in a single piece. If the cervix was very soft, dense tissue would exist along the periphery, towards the canal and in its angles. It was different from the homogeneous tissue in the scar, more dense, and would cut like sole-leather. With such a condition a uterine canal could not be formed satisfactorily; the sutures would cut out. This induration could not be relieved by local treatment. In performing the amputation the cervix should be removed until healthy tissue was reached. Asepsis should be as rigid as possible. In conclusion he stated that while twenty years' experience had shown that amputation was sometimes preferable, the old operation should be done whenever possible.

PATHOLOGY.

UNDER THE CHARGE OF

JOHN GUITÉRAS, M.D.,

ASSISTED BY

DAVID RIESMAN, M.D.

FLEXNER (*American Journal of Medical Sciences*, May, 1897) reports two cases of amebic abscess of the liver, together with the only other one that he was able to find in the literature, in which secondary perforation of the inferior vena cava resulted. The first case occurred in a man, aged 51 years, in whom the liver was incised, and between 1000 and 1500 cubic centimetres of brownish pus-like fluid were evacuated. A large drainage-tube was introduced, and the wound was packed with iodoform gauze. Eleven days after the operation there occurred a copious hemorrhage into the wound, and death soon resulted. Amebæ had been found in the fluid evacuated.

Post-mortem examination disclosed in the right lobe of the liver a funnel-shaped cavity near its anterior edge, five centimetres from its superior border. In its widest part this cavity measured four centimetres in diameter, and led directly into a cavity in the substance of the right lobe of the liver the size of an orange. This second cavity at its deepest part measured ten centimetres in its greatest diameter. Across its upper portion ran the inferior vena cava, and at a point two centimetres from the superior border of the liver it was occupied by a thrombus that half filled its lumen. On removing this thrombus two perforations, one the size of a split pea, the other of a poppy-seed, were disclosed, leading directly into the cavity in the liver. For a distance of five centimetres the adventitial coat of the cava was in contact with the abscess and assisted in the formation of its posterior boundary wall. The right lobe of the liver contained numerous additional abscesses of varying size. The intestines were free from ulceration, but several pigmented and depressed spots were present in the large intestine; and in the ileum, about fifty centimetres above the ileo-cecal valve, there was a puckered area one centimetre in diameter. Microscopic examination of sections from these parts showed, however, the normal structure of the mucosa. No evidence of previous ulceration was made out. Each lung contained an embolic abscess. Examination of the fresh contents of the abscess at the autopsy showed living amebæ in moderate numbers. Several varieties of bacteria were also present. The smaller abscesses and necrotic areas contained streptococci in pure culture. The pulmonary abscesses also were of streptococcus origin.

The second case was a man, 45 years old, in whom resection of the sixth rib on the right side permitted of the evacuation of a large quantity of pale-brownish pus. The discharges contained amebæ. The patient subsequently became more and more feeble, and death resulted.

Upon post-mortem examination the right lobe of the liver was found to contain a large abscess, communicating directly, through the diaphragm, with a cavity in the lung. The abscess was bounded posteriorly, in addition to the thickened capsule of the liver, by the adventitial coat of the inferior vena cava, into which it had ruptured at the point of entrance of the hepatic veins. The

cava, beginning at a point just above the rupture, contained an occluding, partly decolorized, firm, and adherent thrombus, which extended upward and projected into right auricle, about one-third of which it filled. Some of the main hepatic veins contained thrombi, which were firm and decolorized in the upper and red and soft in the lower portions. The small intestine showed only congestion and a few small areas of ecchymosis, chiefly in the mucous membrane. The large intestine, on the other hand, was the seat of many ulcers, which for the most part did not reach the size of a bean. They were in the mucous membrane or at most projected very superficially into the submucosa. They were quite regular and smooth, not undermined, and were covered with a sticky pus-like material. The majority were in the cecum and upper colon; they were fewer and well separated in the sigmoid flexure and rectum. The fresh material taken from the abscess common to the liver and the right lung contained many living amebæ. The left lung contained many small abscesses, presumably of embolic origin, and the left lobe of the liver two or three, of which none was larger than a split pea. In none of these were amebæ found. They, as well as the large abscess, contained cocci in clumps. Bacteriologic examination revealed the presence of staphylococcus pyogenes aureus in these situations, as well as in the blood of the heart and organs generally.

It is pointed out that the special features of interest in the cases reported are the existence of an amebic abscess of the liver in the first in the absence of intestinal lesions, and the probability in the second of the intestinal lesions being secondary to the hepatic and pulmonary abscess, perhaps through the biliary passages and the bile.

Relation of Tabes and Multiple Sclerosis to Injury.

Mendel, at the Berlin Gesellschaft für Psychiatrie und Nervenkrankheiten, January, 1897, discussed the relation of tabes and multiple sclerosis to injury. In seven out of nine cases where the tabes had been referred to traumatism, the onset of the disease could be shown to be prior to the injury. In two cases, however, this was not so; one occurred three years after amputation through the thigh, but the patient had contracted syphilis six years before the operation; in the other the tabetic symptoms began three months after a fall in a patient addicted to alcoholic excess. The evidence in favor of traumatic tabes cannot be considered conclusive, but it is certain that injury may considerably aggravate the disease when present. In four cases Mendel has seen multiple sclerosis follow an injury, and he considers that there is conclusive evidence that this disease may be caused by injury. This difference in etiology might be expected, for in tabes one particular tract and no other is affected in a typical case, and it is difficult to see how violence which affects the whole nervous system could produce so limited a disease; while, if tabes be regarded as due to a poison, it is very improbable that a sudden transitory injury could give rise to such a poison. Multiple sclerosis, on the other hand, is generally admitted to have its starting-point in the blood-vessels, and it is easy to see how an injury which causes severe disturbance of the cerebro-spinal fluid might produce rupture of vessels, stasis, migration of leucocytes, etc. This view does not, however, preclude the presence of some predisposing cause, such as the excessive development of neuroglia described by Ziegler, which renders the tissues less resistant.

MISCELLANEOUS.

ALVARENGA PRIZE OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

The College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, being the income for one year of the bequest of the late Señor Alvarenga, and amounting to about $180, will be made on July 14, 1898, provided that an essay deemed by the Committee of Award to be worthy of the prize shall have been offered.

Essays intended for competition may be upon any subject in medicine, but cannot have been published, and must be received by the secretary of the college on or before May 1, 1898.

Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within the name and address of the author.

It is a condition of competition that the successful essay, or a copy of it, shall remain in possession of the College; other essays will be returned upon application within three months after the award.

The Alvarenga Prize for 1897 has been awarded to Dr. Joseph Collins, of New York, for his essay, entitled "Aphasia."

Thomas R. Neilson,
Secretary.

BOOK NOTICES.

A System of Practical Medicine. By American Authors. Edited by Alfred Lee Loomis, M.D., Late Professor of Pathology and Practical Medicine in the New York University, and William Gilman Thompson, M.D., Professor of Materia Medica, Therapeutics, and Clinical Medicine in the New York University. To be completed in four imperial octavo volumes. Philadelphia and New York: Lea Brothers & Co., publishers, 1897.

The second volume of this excellent work considers the diseases of the respiratory and circulatory systems, of the mediastinum, of the blood, of the kidneys, of the bladder, and of the prostate gland.

The first article describing the diseases of the nose, of the naso-

pharynx, and of the larynx has been contributed by S. Edwin Solly. It is concise, and was evidently written for the general practitioner rather than for the rhinologist.

The physical signs of pulmonary disease are well described by Elbridge G. Cutler. No qualities are more valuable to the physician than system in making examinations and accuracy of observation. These will be acquired if Dr. Cutler's article be followed. The normal signs are described, and these must be fully understood before pathologic conditions can be detected. An important feature is the description of the variations in the normal resonance in different regions.

Bronchitis—acute, chronic, plastic—and bronchiectasis form the subject of a chapter by A. Lawrence Mason. The article on asthma and hay fever is by the same author.

Elbridge G. Cutler contributes a short section on hemoptysis. The use of large quantities of table-salt for this condition, so frequently resorted to by the laity, is mentioned, although, we believe, it has never been shown to have any certain effect in arresting the hemorrhage.

The various forms of pneumonia are described by Reginald H. Fitz. The writer believes, and we think quite properly, that the mortality of pneumonia has been influenced but little by any special form of therapy. Appreciating the force of this statement, the necessity of careful attention to general conditions becomes apparent.

The following pulmonary conditions are described by William Whitworth Gannett: emphysema, atelectasis, edema, abscess, gangrene, embolism, koniosis, syphilis, neoplasms, echinococcus, and actinomycosis.

The section on the non-tubercular diseases of the pleura has been contributed by Herbert B. Whitney. The subjects treated are the different varieties of pleurisy, hydrothorax, pneumothorax, and malignant new growths.

The section on diseases of the circulatory system is introduced by an interesting chapter on the physical signs of cardiac disease, by Elbridge G. Cutler. Following this Warren Coleman writes on pericarditis and hypertrophy and dilatation of the heart; Alfred Lee Loomis on endocarditis; Elbridge G. Cutler on cardiac atrophy and rupture, acute and chronic myocarditis, and the fat heart; Charles E. Quimby on cardiac thrombosis and aneurism, morbid growths and parasites, hydro-pericardium, pneumo-pericardium, syphilis of the heart, wounds of the heart, and foreign bodies in the heart.

The chapters on neuroses of the heart and on diseases of the blood-vessels have been written by James T. Whittaker. The subjects are fully treated, the portion devoted to aneurism being particularly complete.

The diseases of the mediastinum are described by Irving S. Haynes.

The most interesting contribution to this work is that devoted to the diseases of the blood. The authors are Frederick C. Shattuck and Richard C. Cabot. The technique of making blood examinations is described in detail and fully illustrated. The other subjects that are treated are plethora, anemia, leukemia, leucocytosis, Hodgkin's disease, and the blood in infancy.

Henry P. Loomis has contributed an excellent chapter on nephritis, amyloid degeneration of the kidneys, and renal hyperemia.

I. N. Danforth has written on pyelitis, renal calculus, hydronephrosis, renal tumors, renal abscess, perirenal abscess, renal parasites, and neuroses of the kidney.

The abnormalities of form and of position of the kidney and renal inadequacy are described by James Tyson.

The section on diseases of the bladder and prostatitis is from the pen of I. N. Danforth, and Thomas D. Coleman is responsible for those on abnormalities of the urine and uremia. A copious index, occupying thirty-nine pages, completes the volume.

It is difficult to select special contributions for commendation, nor would it be profitable to do so in the present instance. All of the authors have acquitted themselves very creditably, and some of the articles are of especial excellence; none call for particular criticism. This volume eminently conforms to the intention of the authors, to produce a work that should be thoroughly practical and that would meet the requirements of the general practitioner. The subject of treatment has therefore received prominence in every article. There are a number of well-executed illustrations, some of which are in colors. In this particular the sections on neuroses of the heart and diseases of the blood-vessels by Dr. Whittaker, diseases of the blood by Drs. Shattuck and Cabot, and diseases of the kidneys by Dr. Loomis deserve special mention.

We cheerfully commend the work to the profession as a satisfactory and reliable guide in practice.

A Text-Book of the Practice of Medicine. By J. M. Anders, M.D., Ph.D., LL.D. Philadelphia: W. B. Saunders, 1897.

The multiplication of text-books of medicine goes on apace, and doubtless the majority fill some need. The present work, by an author whose experience in private practice has been no less ample than his opportunities as a hospital physician and teacher, presents evidence of most careful preparation. The author has been particularly careful in dealing with the diagnosis of diseases, and has inserted not less than fifty-six diagnostic tables, showing points of contrast between diseases requiring differential diagnosis. These are undoubtedly useful to the student, though they have sometimes the disadvantage of leading to careless study. Like the small manuals and quiz-books, tables often lead students into the error of memorizing facts which should properly be deduced from pathological knowledge. The error, however, is the student's in such a case, and not that of his text-book.

As to the subject-matter, we find it up to date, well presented, and judiciously selected. Sometimes a greater degree of dogmatism would seem proper, though in general the articles bear the stamp of a teacher's thought. Many of the illustrations are new, and, though the book is not copiously illustrated, the cuts are ample and clear.

The mechanical work is exceedingly well done, the type clear and of suitable size, the paper excellent. On the whole, we have been well pleased with the appearance of this work, and can recommend it as a reliable and readable treatise.

Archives of Clinical Skiagraphy. Edited by Sydney Rowland. Vol. I, Nos. 3 and 4. London: The Rebman Publishing Co. Philadelphia: W. B. Saunders.

Number three of this publication contains skiagrams of a case of fracture of the olecranon treated by wiring, fracture of the lower end of the humerus, hip-joint disease, six toes on each foot, a double monster, ununited fracture of both bones of the forearm before and after union, and of the chest.

Number four illustrates talipes plantaris and calcaneus, dislocation of the elbow, multiple osteoma, fracture of the radius and ulna with dislocation of the radius backward, congenital dislocation of the hip, a lobster (*homarus vulgaris*), a crab (*cancer pagurus*), and a hermit crab, also some specimens of skiagrams taken for use in the kinematograph, taken by Dr. Macintyre. It is stated that at a recent meeting of the Glasgow Philosophical Society, Dr. Macintyre was able to pass a film forty feet in length through the kinematograph, showing clearly on a screen the movements of the leg of a frog. This is a new departure in skiagraphy, and its further development may lead to important results.

Each illustration is accompanied by a brief clinical history.

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MEDICAL MAGAZINE.

DECEMBER, 1897.

CLINICAL NOTE ON "REPEATING."[1]

By H. C. Wood, M.D., LL.D.,

PHILADELPHIA,

Professor of Materia Medica, Pharmacy, and General Therapeutics; Clinical Professor of Nervous Diseases, University of Pennsylvania.

Gentlemen,—This patient illustrates a peculiar nervous manifestation, exhibiting, along with neurasthenic symptoms, a condition in which her life is dominated and made wretched by a constant repetition of a thought or idea which takes entire possession of the consciousness, absolutely distracting attention from other matters. This woman represents a class of cases for which there is in nosology no satisfactory term, but which may be known as "repeaters," the symptom itself being called repeating.

The condition occurs sometimes in neurasthenics, but very frequently in those who should be said to be neuropathic rather than neurasthenic, there being no essential weakness in the nervous system, but rather a condition of disordered functional activity. Repeating constitutes without doubt one of the border-land states in which it is often difficult to say whether the patient should be considered sane or insane, although there may be complete sanity.

In this case the state does not manifest itself in acts. Usually, however, it is shown by act. In this patient the thought simply occurs over and over again, so that the repeating is confined to the intellectual sphere. In the ordinary form the patient is forced by an impulse independent or superior to his will to repeat some act a

[1] Abstract of a clinical lecture delivered at the Hospital of the University of Pennsylvania.

number of times, as touching every paling in a fence or as picking up a book and laying it down over and over again. Often, but not always, this repeating is connected with the presence of a fixed or dominant idea, and it is very possible that this connection occurs much more frequently than is apparent, the patient concealing or perhaps not himself recognizing the dominant idea which is the cause of the repetition.

Such a case I saw recently in private practice. The patient was a middle-aged gentleman, who had for many years been active and successful in business, although his acts were often most aberrant. A college graduate and very intelligent, he was thoroughly capable of analyzing his own condition. He inherited a very strongly religious nature, and joined church in late boyhood. While attending college the name of the Holy Ghost began to come into his mind at times when he would make a step. He would then get the feeling that he was practically stepping on the Holy Ghost, and was thereby committing a sin of blasphemous irreverence. The growth of this feeling was soon accompanied by the sense that he was committing an unpardonable sin in thinking of the Holy Ghost when he did the act, and that it was necessary for his eternal salvation that he do the act without thinking of the Holy Ghost. This gradually led to a perpetual repetition of the step with an effort to banish the idea of the Holy Ghost at the time. As the years went by the sphere of disordered consciousness and intellection widened out until at last it affected every act of life, such as dressing and undressing, signing checks, getting into a carriage, etc. Every act had to be repeated over and over again until the mind was satisfied that it was done without thinking of the Holy Ghost. Moreover, other biblical names of the Deity, such as the Judge, the Almighty, Jehovah, etc., became associated with the repetition, replacing in the original thought or idea the Holy Ghost.

When Mr. X. came under my care the condition had become so constant and serious that nothing could be done by him without a continuing repetition. Even the act of frowning had to be gone over and over again.

The case was essentially different from the one before you in that the repetition did not invade the sphere of thought, there being no tendency to the repetition of a thought, except when the thought translated itself into action.

In many of these cases of repetition there are other evidences of disordered intellection, but in the case of Mr. X. the only other disorder that I could find was a pronounced fear of high places. In the various strange milder forms of mental aberration much interest

attaches to theories which account for the symptomatic condition, and it would seem probable that the repetition, when not the result of a fixed idea, may be due to a weakening of intellectual inhibition, and is therefore allied to the condition of a hysterical person. Indeed, in the present case there are distinct evidences of hysteria. When the spinal motor cell is thrown into action, by an appropriate impulse from without its borders, there is probably in the motor cell a residuum of excitement after the first discharge of nerve force, which residuum tends to manifest itself in action, but is normally arrested by an inhibitory influence which comes from without the motor cell concerned. The capability of making fine movements largely depends upon the ability of the inhibitory centres to instantaneously arrest motor discharges in the spinal cord at necessary times. If spinal inhibition fails slightly, discharges from the motor cells are not arrested at the proper time, and so the movements become excessive and irregular; or if the depression of spinal inhibition be very great the voluntary movement is replaced by a wild erratic movement which we call choreic: again, when as in the frog poisoned with atropine, the spinal inhibition is paralyzed and the motor cells of the cord left active, general spinal, tetanoid convulsions result; the single impulse, coming from a peripheral nerve, unrestrained by any check, spreads from cell to cell, until the overflow involves the whole motor cord.

There is no reason for believing that the cell the result of whose functional activity is thought differs in its general life history from the cell the result of whose functional activity is motion. When the functional activity of intellectual cells leads to the formation of an idea so that no secondary action occurs, the functional excitement probably has a tendency to perpetuate and reiterate itself, but is normally arrested by an inhibitory impulse. If this inhibitory impulse be weakened there is repetition of the functional act,—*i.e.*, of thought-making.

All neuropathic states are of difficult relief, but with wider experience I have an increasing faith in the results of proper management and treatment in these cases of repetition. Mr. X. has been largely taken out of the condition that had existed for years, and so far practically cured of the habit of repetition, that he is able at almost all times to dominate the impulse when it appears.

The methods of treatment are hardly to be put into words in detail, though the general scope of therapeutic effort is very easily portrayed. First, probably, in importance comes the building up and the increasing of the ruggedness, so to speak, of the nervous system. The relief of the neurasthenic conditions may at first require the rest-cure, but often from the very beginning there are needed simple out-door life, increasing exercise, and a general reversal of the processes

which in successive generations has developed the neuropathy. The old Grecian fable that Antæus gathered strength by returning to the bosom of his Mother Earth typifies the history of the human race. The getting away from the simple life of the husbandman is the great cause of neuropathy, and the great cure of neuropathy is the return to an out-door life, to the freedom from excitement, the simple food, the healthy habits of the tiller of the soil or of the hunter of the forest. Moral management is important, having for its object the increase of the power of the will. The will is an inhibitory intellectual function, and when it is normal it controls thought and action.

OCCASIONAL NOTES ON AMERICAN MEDICAL CLASSICS.[1]

Introductory Lecture to a Course of Clinical Observations in the Pennsylvania Hospital, delivered there on the 3d of December, 1776, by Dr. Thomas Bond.

By William Osler, M.D.,

BALTIMORE,

Professor of Medicine in the Johns Hopkins University.

This is interesting to us as the first clinical lecture delivered in America. Founded in 1752, the Pennsylvania Hospital was the first general hospital organized in the English-speaking colonies. It grew rapidly, so that within fifteen years of its foundation there were 130 patients in the wards. The original staff consisted of Dr. Thomas Bond, Dr. Phineas Bond, and Dr. Lloyd Zacchary.

We have already heard, in speaking of Dr. John Morgan, how the Medical Faculty of the Philadelphia College had been organized. Neither Morgan nor Shippen, the two professors, were connected with the hospital, and it was doubtless felt that it would be of great importance to the young school if the students were enabled to attend its practice and receive instruction in the wards. Accordingly, we find from the minutes of the managers that a letter was received from Dr. Thomas Bond, in which he proposed to give clinical lectures to the students on physic on the nature, causes, and cure of diseases, and to put up a meteorological apparatus in the picture-room for observa-

[1] Read at a meeting of the Johns Hopkins Hospital Historical Society.

tion of the weather, and keeping an exact account of the epidemic diseases caused thereby. He requested them to call a meeting, at which he should present to them the advantages to be derived from the institution of such lectures. Accordingly, we find the note in the minutes "that on the 26th of the 11th month, 1766, in pursuance of the summons of the sitting managers, all the managers met at the house of Dr. Thomas Bond, together with the following physicians: Dr. Thomas Bond, Dr. Cadwallader, Dr. Shippen, Dr. Redman, and Dr. Evans." The lecture was ordered to be inserted in the minutes of the board, and has in this way been preserved. It is stated in the heading of the lecture that it was delivered in the Pennsylvania Hospital December 3, 1766, which would indicate that Dr. Bond had repeated the lecture before the students in public, and that the notice of the lecture, having been read on the 29th of November, referred to a private reading before the managers at Dr. Bond's house.

The lecture has a special interest as the first delivered in a hospital in this country. In 1827 it was copied by Mr. Paul Eve, at that time a student of the Pennsylvania Hospital (who subsequently became a distinguished surgeon in the West), and it appears in the *North American Medical and Surgical Journal*, Vol. IV, for that year.

Of the lecture itself I may give the following abstract: Dr. Bond refers first to the school of physic, lately opened in the city, which, with the co-operation of the institution of literature and charity already founded, will enable the student of physic to acquire all the knowledge necessary for practising every branch of his profession, reputably and judiciously. The student should study medicine in the country in which he is to practise, as every climate produces diseases peculiar to itself, and the precepts and a never-failing experience are handed down locally from father to son and from tutor to pupil. In speaking of the three chairs which had been organized at the medical school, he refers to the necessity of supplementing a theoretical and didactic instruction by a personal knowledge of disease, remarking that the student "must join examples with study before he can be sufficiently qualified to prescribe for the sick; for language and books alone can never give him adequate ideas of disease and the best method of treating them. For which reasons, infirmaries are justly reputed great theatres of medical knowledge." He gives an admirable picture of the way in which ward work should be conducted; "the clinical professor comes in to the aid of speculation and demonstrates the truth of theory by facts; he meets his pupils at stated times at the hospital; and when a case presents adapted to his purpose, he asks all those questions which lead to a certain knowledge of the disease and parts affected; this he does in the most exact and particular manner to con-

vince the students how many and what minute circumstances are necessary to form a judgment of the curative indications on which the safety and life of the patient depends; from all which circumstances and the present symptoms he pronounces what the disease is; whether it is curable or incurable; in what manner it should be treated, and gives his reasons, from authority or experience, for all he says on the occasion; and if the disease baffles the power of art, and the patient falls a sacrifice to it, he then brings his knowledge to the test and fixes honor or discredit on his reputation by exposing all the morbid parts to view, and demonstrates by what means it produces death; and if, perchance, he finds something unexpected, which betrays an error in judgment, he, like a great and good man, immediately acknowledges the mistake, and, for the benefit of survivors, points out other methods by which it might have been happily treated." He gives two illustrations of the value of post-mortem examinations in forming diagnosis and in giving students just ideas of the causes of death. In connection with one of these cases, an abscess of the brain, he remarks on the paralysis of the body on the opposite side.

With a wisdom we can appreciate better than his hearers, he urges the study of the causes of disease, particularly of the severe epidemics, with which Philadelphia had been plagued for many years. He states "the atmosphere which surrounds us is fine, the air we breathe free, pure, and naturally healthy, and I am fully persuaded we shall find, on strict study, when it becomes otherwise, it is from contagion imported or neglected sources of putrefaction among ourselves, and, therefore, whenever we are able to demonstrate the causes, they may be removed and the effect prevented." In the case of malaria, which had been particularly severe during the preceding year in the Middle and Southern States, he held out hopes, from the experience he had had in Philadelphia, that by proper drainage and cleanliness, the severity of the epidemics could be mitigated. He says, "When I first came into this city, the Dock was the common sewer of filth, and was such a nuisance to the inhabitants about it that they were obliged to use more pounds of bark than they have ounces since it has been raised and levelled. Another striking instance of the advantage of cleanliness for the preservation of health affords me an opportunity of paying a tribute, justly due, to the wisdom of the legislature of this province, in framing salutary laws for paving and regulating the streets of this city, and to the indefatigable industry and skill of the commissioners in executing them; whereby they have contributed so much to the healthiness of the inhabitants that I am confident the whole expense will be repaired in

ten years, by a lessening of the physic bills alone." It is very interesting to note the clear and decisive manner in which Dr. Bond speaks of the necessity of isolation and disinfection of cases of contagious disease. Speaking of typhus fever, he states that he had lately visited an Irish vessel, which had come into the port, and had found five passengers ill with the jail fever,—the typhus. He saw that the *fomes* of infection were spreading, and ordered the ship "to lay quarantine, to be well purified with the steams of sulphur and with vinegar; directed the bedding and clothing of the people to be well washed and dried before any person should be permitted to land out of it; after which I advised separating the sick from the healthy." We cannot consider him so happy in his remarks upon the prevention of autumnal and intermittent fevers; referring in particular to his remedies, which still are popularly believed to lessen the receptivity of the malarial poison,—namely, sassafras-bark and the natural chalybeate sulphur-waters. In conclusion, he tells the students that he will be prepared to meet them at stated times and to introduce them to a familiar acquaintance with the acute diseases, and with the nature and treatment of chronic diseases, and the proper management of ulcers, wounds, and fractures, and he promises that they shall see many curious cases among the 130 sick persons at the hospital. He promises also to put up a complete meteorological apparatus, in order to study the effects of the variation of the weather upon the prevailing diseases. And he advises the students to attend Provost Smith's course of experimental philosophy, in order that they may the better appreciate his remarks on meteorology.

In a subsequent minute the managers unanimously agree to the proposal to institute clinical lectures, and placed the fee for the privilege of attendance at one guinea per annum; the money to be applied towards establishing and promoting a medical library.

A few details about Dr. Thomas Bond may be of interest, and for the most of these I am indebted to Dr. W. A. Armstrong, of Philadelphia.

Dr. Bond was born in Calvert County, Md., in 1712. He received his medical education in Europe, and began to practise in Philadelphia in 1732. He appears to have been a very philanthropic man, and about 1750 the idea of a hospital for the sick poor occurred to him. After repeated unsuccessful interviews with wealthy and influential people he finally consulted Benjamin Franklin, who eagerly embraced the project, and who "by the use of a little cunning" introduced a bill into the Assembly, February 7, 1751, entitled "an act to encourage the establishment of a hospital." Franklin's diplomacy secured the unanimous passage of this act, which received the gov-

ernor's signature May 11, 1751. Soon after this a meeting was called and managers elected, of whom Dr. Bond was one. A contributor, Samuel Rhoads, a builder, was instructed to "look for and secure boards to build the hospital." In the mean time a private dwelling-house on Market Street above Fifth was leased at £40 a year.

October 23, 1751, Dr. Lloyd Zacchary, Thomas Bond, and his brother Phineas Bond, offered "to attend gratis for the first three years." Drs. Graeme, Cadwallader, Moore, and Redman were to be called in extraordinary cases.

The first patients were not admitted until February 11, 1752, and it was not until 1754 that the present site of the Pennsylvania Hospital was purchased. Dr. Bond would appear unquestionably to have been the originator of the Pennsylvania Hospital, and full credit is given to him by Benjamin Franklin. Several notes in the minutes refer to Dr. Bond; thus, on November 30, 1757, he presented the library with medical books valued at £12 4*s* 9*d*. On March 28, 1769, the first mention of fees (£26 7*s* 0*d*) received from medical students attending the lectures of Dr. Bond. Dr. Bond served as surgeon and physician to the hospital from October 2, 1751, to May, 1776. No mention of his name as attending physician occurred after this date, but at a subsequent meeting, March 26, there is an appropriate minute on his death, in 1784.

A GLANCE AT THE CAUSES OF NEURALGIA AND SOME SUGGESTIONS FOR ITS TREATMENT.

By Beverley Oliver Kinnear, M.D.,

NEW YORK.

Regarded as a disease which is not dangerous to life, neuralgia has probably caused more acute and wide-spread genuine suffering than any other known complaint. Its manifestations are "legion," and certainly those who are afflicted by its pangs, its darts, its tearings and wrenchings, its grindings and burnings, its shootings and cuttings are apt to believe in the actual existence of Satan and his attendant imps, who are holding high carnival in the infliction of multitudinous pains and aches upon their poor bodies.

Neuralgia may manifest itself from a slight increase of sensation to the most indescribable agonies; its varieties are almost innumerable, and its causes at times appear to be inscrutable.

To suggest an origin for some of these apparently hidden causes,

and at the same time to advance some views for their successful treatment, is the object of this paper. The very name of the disease denotes what it is, but not necessarily its origin, although the profession generally believe that neuralgic pains are seated in the sensory centres, with their manifestations at the nerve terminals. We believe that the pain is where it is located by the patient, but that the function of the sensory centre, connected with the seat of pain, is much increased. The difference between neuralgia and neuritis is very clear, for in the latter disease there is a genuine inflammatory process taking place in the nerve-tract itself, or its connective tissues, or the nerve-sheath; while in the former no lesion can be observed in the nerve-tract or at its terminal.

Where, then, can the root of the suffering be but at the nerve-centre? Of course, there are reflex neuralgias, such as neuralgia of the ear from a bad tooth, or the great variety of reflex pains due to a lesion of the os uteri, or pain in the stomach induced by bladder trouble; and in these forms the object of the physician is to remove the cause by drawing the tooth, or restoring the diseased organs to health. But there are neuralgias where we cannot find any organic or exciting cause; not, we believe, that there is no cause, but that certain conditions as causes have been overlooked by the profession.

One of the chief causes of these apparently mysterious attacks we believe to be fluctuations in the circulation of the blood, either through sudden expansion of the blood-vessels locally, or a sudden contraction of them in the extremities, thus forcing the blood into the internal organs, including the spinal cord and brain. If in such a case there be a tendency in any sensory centre to undue dilatability of the arterioles within it, the excessive amount of blood entering the centre will increase its function, and the consequence will be increased sensation, or pain, at the nerve terminals. For instance: some years since a patient arrived at our office suffering with neuralgia in the region of the liver, which was exceedingly severe. He had been exposed to cold, and had been thoroughly chilled; and we found that his body from the abdomen downward was very cold to the touch. We told him to go to his hotel and put his feet in hot water and mustard, and that we would call upon him in half an hour, which we did; and found him entirely relieved from all pain by this simple application, which had at once restored the circulation to the extremities, and thus withdrawn the excess of blood from the centre of the pain in the sensory area of the spinal cord. No further treatment was required. Let us illustrate from another point of view. We were called, one evening, to a lady patient suffering with the greatest agony from neuralgia of the uterus, which was reflex in its origin, and reflected

upon the womb from stomach trouble; and there could be no doubt of this origin, because, whenever she had indigestion, the pain would be referred to the womb, but in this instance she had eaten of strawberries, which she knew never agreed with her, and the resulting attack was agonizing in its intensity. The patient was passing through the change of life, and begged us to give her a hypodermic of morphine, as it was the only treatment that ever relieved her. Feeling convinced that the cause of the attack was acute indigestion, and the stomach being immensely distended with wind, instead of giving the morphine, we filled a ten-inch dorso-lumbar spinal ice-bag with finely cracked ice, and applied it over the dorso-lumbar region of the spine. In less than three minutes after the application was made she began to belch up wind so forcibly, and in such quantities, that it appeared as if she must choke; gallons of it apparently passed out of her mouth in a few seconds, and she sank back upon her pillows quite exhausted, but entirely relieved from the pain in the womb, and after a few minutes fell asleep with the bag upon the spine; it was removed in about an hour; she passed a quiet night, and had no further return of her trouble.

It appeared to us, in our diagnosis of this case from the point of view of hyperemia of nerve-centres, induced here by the attack of indigestion, that the ingestion of the strawberries had caused a reflex action of the sympathetic ganglia controlling the circulation in the extremities, and a powerful contraction of blood-vessels therein, giving rise to the same congestion of internal organs spoken of in the previous case; but, as the womb was the chief organ involved in diseased conditions, the sensory centre connected with that organ, being already congested, became more so, and its function increased greatly, thus the severe pain in that region. At the same time there was a powerful contraction of the muscular fibres at the cardiac, as well as at the pyloric orifice of the stomach, which caused the distention and prevented the escape of the wind; this muscular contraction being due to hyperemia of the motor nerve-centres governing these muscles. The cold over the spine at once dilated the blood-vessels in the lower extremities, and at the same time expelled the excess of blood, both from the painful centres as well as from the central motor cells; the contracted muscular fibres at the orifices of the stomach expanded, the wind escaped, and the pain ceased.

In this case the recovery was due to the action of the cold locally expelling the blood from the congested centres; in the first case, the action of the heat upon the extremities withdrew the blood from the congested centres by expanding the circulation in the extremities. The action and result were the same upon the hyperemic centres, but

one was direct and the other indirect. Both these cases illustrate the fact that, by withdrawing or expelling the blood from the central nervous system, we not only can relieve the pain of neuralgia, but also restore to its normal balance the systemic circulation, interfered with in both of these patients, as demonstrated by the cold extremities observed in the lady treated, as well as in the male patient.

In a case of neuralgia treated some years since in a male patient, involving almost every nerve in the body, causing intense pain chiefly in the night hours, we found that the circulation of the whole organism was feeble, or rather contracted, because legs, arms, and body were cold to the touch, but, as the patient told us, "especially so at night."

There was no disease of any organ whatever that we could discover, so that we treated the case by the full length spinal ice-bag, extending from the fourth cervical to the third lumbar vertebra. These spinal ice-bags should never be more than four inches and a quarter in width for the adult, except in men of unusual height or breadth, because, if cold be applied over the back in bags of greater width, especially when using full-length bags, it will chill the body, and not expand the general circulation; which it will always effect, if used in bags of the right width. This patient used the bag for forty minutes three times in the twenty-four hours for six weeks, when he reported himself as entirely well, sleeping soundly without pain, with an excellent appetite, and a full round pulse; a great increase of general strength, and a body warm throughout.

This was undoubtedly a mixed case, as there was pain on pressure over the course of some nerves, and not others, and would seem to imply that neuritis has its origin in the trophic nerve-cells which govern the metabolic changes, or, otherwise, the expansion of the arterioles in the nerve substance, the sheath, and connective tissues of nerve-fibres.

We do not declare this to be true, but we have cured several cases of undoubted neuritis of the sciatic nerve, where there was great pain and tenderness along its course, by the application of cold alone over the dorso-lumbar vertebræ.

Neuralgia is almost an invariable accompaniment of the anemic condition, and in such cases our object has been twofold,—not only to expand the general circulation by means of cold over the spine, and thus excite a better general nutrition of the body, expelling the blood at the same time from painful centres, but to add to the treatment very minute doses of iron; and, latterly, we have found that recovery may be much hastened by the proper inhalation of oxygen. We are informed by Dr. John V. Shoemaker, in his work upon "Materia Medica and Therapeutics," that "oxygen first quickens, then

slows the pulse, but makes it fuller and rounder: in addition, there is evidence in lips and finger-nails of increased oxygenation of the blood, and cicatrizing wounds and granulation tissues, as observed by Demarquay, become more ruddy; digestion and appetite improve, and there is increased assimilation and resulting physical strength. The expiration of carbon dioxide largely increases, thus tissue changes are enhanced."

Our own observation of the action of oxygen by inhalation coincides with that of this author, and in cases of neuralgia in anemia, we advise the administration of the three remedies mentioned in conjunction. In those forms of neuralgia where the whole head is congested, as evidenced by throbbing and dilated temporal arteries, and a hot head, while the chief pain may be localized, either at the vertex, in the supraorbital region, or in one-half the head, we have found the most speedy and grateful relief obtained through action upon the whole hyperemic condition, by the application of heat in the spinal hot-water bag placed over the cervico-dorsal sympathetic ganglia. Filling the double-columned hot-water bag, and thus applying it, will at once begin to increase the function of the ganglia, and as a resultant we will find the temporal arteries contracting visibly, their pulsations growing less forcible, the whole head lessening in temperature, and the pain gradually and steadily disappearing; the patient falls asleep usually, and after two or three hours wakes greatly relieved. In active congestions of the brain from any cause, including the hyperemia of uremic poisoning, the hot-water bag placed over the cervico-dorsal region will afford striking relief.

In many inflammations, the hot-water bag placed over the proper segments of the spine will in the first stages abort the attack, and, when the disease is advanced, prevent its extension. In the application of the spinal hot-water bag, it is best not to use water hotter than 115° F., because we have found that higher than 120° will be apt to contract the arteries in the sympathetic ganglia instead of expanding them, which is the object to be attained; also, because in individuals with weak hearts the contraction of the coronary arteries must not be allowed to take place too rapidly, for fear of so weakening the action of that organ as to place the patient in danger.

We have found that cold over the spine in neuralgia not only expels the blood from congested spinal sensory centres, relieving the pain, but that it also makes a good circulation throughout the whole body, thus aiding assimilation, increasing nutrition, and giving new vigor to the patient. During the past sixteen years we have treated neuralgias of the liver, of the stomach, of the sciatic nerve, thoracic neuralgia, and many other forms, successfully, by the use of the spinal ice-bag alone.

That the heat and cold of the atmosphere, as well as electric atmospheric conditions, have much to do with transient attacks of neuralgia, particularly in neurotic patients, we have no doubt; and we consider that the main factor in the production of the pain is the rapid contraction or expansion of blood-vessels, caused by sudden changes in the weather or electric atmospheric conditions. How many women know when thunder is in the air, by the accession of headache, in the summer time; how many others suffer with congestive headache from heated states of the atmosphere, and again some sensitive women cannot be in the least chilled without an attack of neuralgia. When we consider that the blood is the agent of nutrition to all parts of the system, and that increase of function is induced in all organs by increase of active circulation; and, again, when we realize that the twelve to twenty pounds of blood in the adult may be suddenly forced by the heat or cold of the atmosphere into the internal parts of the body and vital organs, almost completely, we begin to realize how the functions of such organs may be increased, and how pain may evidence itself from the resulting hyperemia, and therefore abnormal stimulation of sensory centres; and we also begin to apprehend that fluctuations of the circulation of the blood within the body may be the originating cause of many forms of disease; also, that atmospheric heat and cold and electrical states of the atmosphere are frequently the source of such fluctuations.

Oxygen should only be used by inhalation when diluted with a gas of lighter specific gravity than itself, and we strongly recommend a combination consisting of two parts of pure oxygen, one part of nitrous monoxide, and one per cent. of ozone, to keep the gas fresh in cylinder.

No commercial and therefore impure preparation of oxygen should be administered by the lungs; only preparations specially prepared for therapeutic use.

A CASE APPARENTLY OF TYPHOID FEVER ASSOCIATED WITH TUBERCULOSIS AND NEPHRITIS.

By Herman B. Allyn, M.D.,

PHILADELPHIA,

Instructor in Physical Diagnosis in the University of Pennsylvania; Physician to St. Joseph's Hospital.

The following case seems to me of sufficient interest to deserve a permanent record. Briefly the history is this: A man who had a

continued fever of high range and most of the ordinary symptoms of typhoid fever, whose blood responded positively on two occasions to the Widal serum test, had also tuberculosis and nephritis, which were recognized during life. The man died about six or seven weeks after apparent convalescence from his typhoid fever. The autopsy showed scarcely any evidences of typhoid fever.

J. J. P., aged 40 years, was admitted to the Philadelphia Hospital July 17, 1897, complaining of fever, loose bowels, and of feeling all broken up. The man's father and mother were both dead, of unknown causes. The patient had had measles, mumps, chicken-pox, pertussis, diphtheria, subacute rheumatism, and small-pox. He denied having had chancre or chancroids, but confessed to three attacks, at least, of gonorrhea; has been a heavy drinker and has used a great amount of tobacco. He had never had typhoid fever. His occupation of driver exposed him to great changes of weather.

The patient was a tall, rather spare man, of good muscular development, but with the bleary eyes and congested face of a whiskey-drinker. He stated that he had been feeling mean for seven weeks. During this time his bowels had been irregular, often very loose and watery, at other times regular, and again constipated. During this period he had had complete anorexia, considerable thirst, and felt that he was growing weaker every day. He would go to bed at night tired, sleep poorly, and wake in the morning more tired than he had been on going to bed. He did not have epistaxis during this time, but had aching pains in the loins and limbs, shooting pains through the abdomen, with a rumbling sensation in the bowels. The mouth felt parched. He had not been able to work during this period. He tried to drive his wagon one day, but weakness compelled him to quit. He was not confined to bed, but would be in bed some days and up others.

My first impression on seeing the patient was that he was very ill. The face gave unmistakable evidence of dissipation, the eyes were bleary and sticky. He lay in semistupor, the pulse was small, weak, and beating 100 to the minute; the respirations varied from 32 to 38; the temperature 103° F.; there was slight cough and expectoration. The base of the right lung was dull on percussion, but not very dull; the fremitus was slightly increased, the breathing broncho-vesicular, and there were a few bronchial and subcrepitant râles. The disease was at first supposed to be a low-grade pneumonia occurring in an alcoholic subject. The man's condition was so bad that I remarked to the resident physician, Dr. Gerson, that the patient had a very poor prospect of recovery; but that he would do best if given only strychnine hypodermically, his stomach being saved for food and a moderate

amount of whiskey. This treatment was carried out, and was persisted in through his illness. In a few days, however, it was found that the blood gave the Widal reaction for typhoid fever, and tubercle bacilli were found in the sputum. His urine at the same time gave unmistakable evidence of nephritis in the presence of albumin, and numerous granular and epithelial casts. The case was now looked upon as probably one of tuberculosis, in which typhoid fever and nephritis occurred as complications. This probability was strengthened by the subsequent course of the case, the Bacteriological Bureau of the Board of Health reporting positively as to the existence of the Widal reaction, and tubercle bacilli being invariably found whenever the sputum was examined.

The patient's temperature remaining persistently high, it was decided to employ tub-bathing as the only admissible antipyretic measure. On account of the man's very feeble condition, I recommended warm baths,—meaning baths at a temperature of 90° F. Probably through some misapprehension of the proper temperature for a warm bath the patient was put into a hot bath at 110°. There was no antipyretic effect, in fact, the patient's temperature was higher when he was removed from the water. The resident therefore concluded to try cold baths, and on my next visit, finding that the patient bore the cold baths better than I had supposed, they were continued. From July 20, when the cold tub-baths were begun, to August 13, when they were stopped, the patient received fifty-eight in all. The baths lasted almost always twenty minutes, and the water was at 70°. The baths were surprisingly well borne. They produced the usual shivering and blueness of the extremities, and very frequently external heat to the extremities was necessary upon removal from the bath. Yet the toxemic symptoms lessened under their use, the stomach and digestion continued good, the heart kept up, there was no aggravation of the lung condition, and the kidneys performed their function better than before the baths were begun. At one time, while they were in progress, neither albumin nor casts could be found in the urine.

As to the general symptoms, these and the severity of the case may be judged from the following statement: The man was in stupor alternating with muttering delirium from the day of his entrance, and these symptoms lasted several weeks. At times he tried to get out of bed. He could be roused when spoken to, but would again lapse into hebetude. The stools numbered from three to seven in twenty-four hours; they were liquid, light yellow in color, offensive, and occasionally contained traces of blood. There was no tympanites or abdominal tenderness. During the first week of his stay in hospital the temperature ranged pretty constantly from 103° to 104° F., except as influenced

by the baths. From July 26 it took a somewhat lower range, but the tongue continued dry, brown, and heavily coated, and the mental condition did not improve. The urine was passed involuntarily during most of his illness, and occasionally there would be an involuntary stool. During the latter part of his first week in hospital he developed a number of boils,—on chest, shoulders, back, and legs,—these when opened left shallow ulcers, which were painful and very slow in healing. One on the back was about the size of a silver dollar, and around it were a number of small openings communicating with the main ulcer under the skin.

By degrees the fever lessened, the mind cleared, and control was regained over the bladder and bowel. The last tub-bath was given August 13. Soft diet was begun August 15. The patient's temperature was then 101° F., not varying much night or day. He was judged to be convalescent from his typhoid fever because the toxemia had nearly disappeared, his appetite was improved, and his functions were performed better. The persistence of fever could be accounted for sufficiently by his tuberculosis, by the ulcers, and by the nephritis.

By August 31 the temperature ranged from 98⅗° to 100° F.; the stools were small and formed; the urine was about normal in amount; the ulcers were slowly healing.

On September 13, owing to some repairs to the fever ward, the patient was removed to another ward. Here, after a few days, he was found propped up in a chair reading a paper. But very soon he complained of being very cold and weak. His temperature was subnormal. He seemed to have no rallying power left, and slowly sank, dying September 21, sixty-six days after his admission to hospital, and approximately six weeks after his convalescence from typhoid fever.

The following are notes of the autopsy conducted the following day: Body of an extremely emaciated male, with ulcers on right leg and buttocks, eyes sunken, rigidity marked. The mesentery is congested, the mesenteric glands enlarged. The gall-bladder extends two inches below the margin of the liver. The pleural sacs contain numerous adhesions, some of which are easily broken up. The pericardium is thickened and contains about two ounces of fluid. The heart is flabby. There are a few aberrant chords; otherwise the heart is normal. The lower lobe of the left lung is in a state of tubercular pneumonia, with small areas of tuberculosis in other parts of the lung. The right lung is edematous at the base, with small and large areas of tuberculosis and several small cavities. The bronchial tubes contain a large quantity of purulent fluid. The bronchial glands are enlarged. The spleen is slightly enlarged. The pulp is firm. It presents several small areas of tuberculosis throughout the pulp.

The left kidney was enlarged and swollen; the pyramids congested; the cortex narrow and pale; the capsule strips off easily; surface smooth; it has a small abscess at lower part of kidney, with several small ones in kidney substance containing cheesy matter (probably tubercular). The right kidney is slightly more swollen than the left, has a few abscesses, and condition same as in left; ureters normal; bladder thickened. Glans penis reddened and excoriated. Duodenum and stomach normal. Pancreas normal. Liver enlarged; drips blood when cut. Several small areas (of tuberculosis ?), size of pinhead throughout gland substance with evident fatty infiltration. Appendix eighteen centimetres long. Through small intestine are numerous patches of hyperemia and congestion. Mesenteric glands are enlarged. Brain edematous. Small cyst near pineal gland.

This case suggests several questions of great interest. In the first place, did this man have two concurrent infectious diseases? Did he have tuberculosis and typhoid fever, or only the former? I do not think we are yet in a position to say positively that he had or had not typhoid fever. The general course of the disease, the onset of stupor, muttering delirium, and loose bowels with yellow offensive stools, associated with high temperature, and the gradual subsidence of all these symptoms, speak very strongly for typhoid fever. Stupor and delirium, it is true, occur in tuberculosis, but only in the last stages of the disease or when the cerebral meninges are involved; but in such cases they are progressive to a fatal issue. In this case the man convalesced from the attack, and when later he died the brain gave no evidence of tuberculosis. Again, the presence of the Widal reaction must be regarded as very important testimony as to the present or previous existence of typhoid fever. The blood was examined both by Dr. Kneass, of the Pepper Clinical Laboratory, and by the Laboratory of Hygiene of the Philadelphia Board of Health, and in both instances the report was positive. These examinations were both made soon after the patient's admission to hospital. I had supposed that the examinations were repeated throughout the man's illness, and have only learned since his death that this was not so. It is much to be regretted.

In the absence of marked clinical evidence of typhoid fever, I should not be willing to accept the Widal reaction as sufficient, if only because it has been found in miliary tuberculosis. The reaction has not been found, so far as I know, in tuberculosis of the form presented by our patient.

It has been mentioned that the notes of the autopsy are silent as to the appearance of the ileo-cecal region and Peyer's patches. As I was not present at the autopsy I can say nothing from personal knowl-

edge. Dr. Gerson, the resident physician, who was present at the autopsy, tells me that Peyer's patches did not exhibit the shaven-beard appearance one would expect to find, and that there was no evidence of healed ulcers. He says, however, that there was one small ulcer in the intestine. In estimating the negative evidence furnished by the autopsy one should bear in mind that we cannot be certain when the patient's supposed typhoid fever began, nor can we tell when convalescence set in. He was ill for six or seven weeks with symptoms indicating typhoid fever before his admission to hospital. His temperature became normal first August 8. If convalescence is dated from that day then the man lived fifty-one days. Is it certain that the intestine could show unmistakable evidence of typhoid fever seven weeks after convalescence if the intestinal symptoms as regards ulceration were not prominent during the attack? Another question of great interest is as to the propriety of cold baths in cases of typhoid fever exhibiting great feebleness and complications on the part of the lungs and kidneys. My own preference, as already stated, would be for warm baths at 85° or 90° F., keeping the patient in them for a half hour or longer. If these should, after a fair trial, prove ineffective, the cold baths may be tried; but after the lapse of the first eight minutes the rectal temperature should be taken every one or two minutes, and the patient removed when the rectal temperature reaches 100°. There is no doubt in my mind that water in some form is the safest antipyretic; the feebler the patient the more it is indicated if high temperature exist.

Finally, as the value of the Widal serum test must be decided upon the results of repeated trials, all cases throwing light upon it should be recorded. Dr. Abbott informs me it has so far failed in only 3 per cent. of over 1100 cases examined by the Philadelphia Laboratory of Hygiene.

After a very imperfect search of the literature I have found only two cases which throw any light on the cases just reported. In one, reported by G. H. Lemoine (*Bulletins et Mémoires de la Société des Hôpitaux de Paris*, 1896, 3 S., Vol. XIII, pp. 675, 676), a man aged 22 years, was admitted to hospital with symptoms of typhoid fever. But he had had typhoid fever when 17 years of age. He had undoubted tuberculosis. Bacilli having all the morphologic and culture characteristics of typhoid bacilli were cultivated from his stools. At the autopsy only tuberculosis was found. Lemoine thinks the bacilli were latent in the intestine, and failed to develop typhoid fever because the patient was protected by a previous attack.

In a second case, reported by Sarda and Villard, in *Revue de Médecine*, 1893, xiii, pp. 852–862, a man, with tuberculosis and marked

clinical symptoms of typhoid fever, was regarded during life as the subject of a mixed infection. At death general tuberculosis of lungs, intestines, and cerebral meninges was found; but in the intestine were also some ulcers, non-tubercular in appearance, and some in process of healing. From the spleen Eberth's bacillus was cultivated on a variety of media.

FUNCTIONAL ENURESIS. ITS NATURE AND TREATMENT.[1]

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"Whoever will treat enuresis with success must be prepared for a preliminary inquiry of a somewhat complicated nature." So said Goodhart, and the lapse of years has served to accentuate the forcefulness of the remark. Yet, our present-day literature teems with articles in which single drugs or combinations are assumed to have rendered the problem a simple one; and in the surgical dispensary it is frequently taken for granted that circumcision affords universal relief to males afflicted with this troublesome symptom.

The symptom, enuresis, refers to an involuntary flow of urine, either in drops or in jets, occurring at regular or irregular intervals, and accompanied or unaccompanied by conscious sensation of the process. Before entering upon a discussion of this symptom, it is obviously necessary that we should study the normal process of micturition. Anatomical details one may well omit, but an understanding of the physiology is of fundamental importance, and I shall run the risk of repeating truths more or less familiar to all.

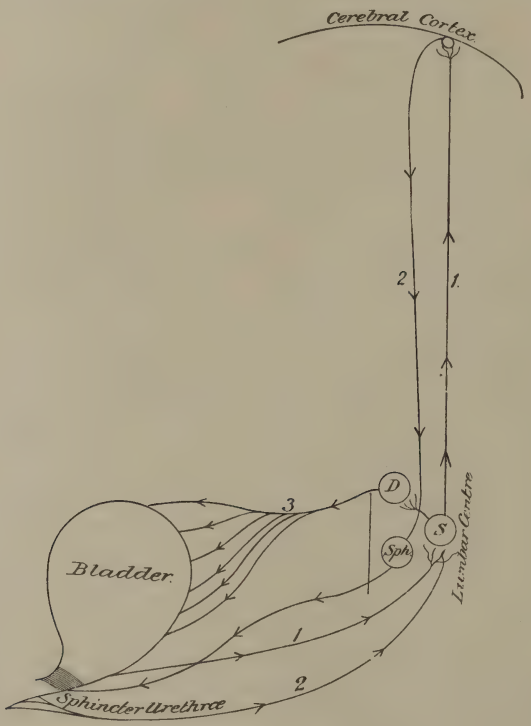
(1) We must recognize a centre in the lumbar cord, situate between the second and the fifth lumbar segment.[1] (Budge, Goltz.) This centre is composed of three parts,—viz.: (*a*) The sphincter centre (Budge) at the fifth dorsal level. This centre is always active unless inhibited by cerebral impulses, or afferent messages of a sufficiently forceful character. (Such impulses are generated by over-distention of the adult bladder; in the infant under normal conditions, and in the dog with a sectioned spinal cord.[2] (Goltz.) (*b*) A centre for the

[1] Read before the Philadelphia Pediatric Society.

bladder walls (detrusor centre), located somewhat higher than the former, and differing from it in being but occasionally active. (*c*) A sensory centre. (See diagram.)

(2) A brain centre, which has been placed in the thalamus, but which physiological analogies would locate in the cortex of the cerebrum.

(3) Centripetal and centrifugal nerves or axons. The centrifugal or motor axons pass out in the lumbar nerves and in the sacral region. The lumbar axons reach the inferior mesenteric ganglion and then proceed in the hypogastric nerves. The sacral fibres, which are more



important, emerge in the second and third sacral roots and proceed to their destination in the nervi erigentes. (Langley and Anderson.)[3] [4]

The centripetal or afferent axons pass through certain posterior roots of the sacral nerves (third, fourth, and fifth, according to Landois; first, second, third, and fourth, according to Nawrocki and Shabitschewsky).[5] The axons constituting the cerebral arc we need not dwell upon; suffice it to say that they connect the cerebral with the spinal centres.

Having thus sketched the elements of our nervous system, a description of the act of urination is rendered very easy. In the diagram, one simply follows pathway one (1) which, of course, carries the impulse informing our cerebral cells that the bladder contains sufficient urine to demand evacuation; pathway two (2) traces a cerebral impulse which inhibits the sphincter centre, thus relaxing the sphincter urethræ muscle and permitting a few drops of urine to pass into the urethra. (This passage is expedited by voluntary contraction of the abdominal walls.) Pathway three (3) illustrates the reflex portion of the act by virtue of which the bladder walls themselves contract.

Urination in the infant is a purely reflex thing, comparable to the act as observed in the dog with a severed cord. To understand it, we have but to cut out the cerebral arc of our diagram. Ordinarily in the second year of life, or early in the third year, this primitive act is supplanted by the normal adult process.

A consideration of our mechanism would scarcely be complete were we to neglect the fact that the bladder walls, like other muscular structures, are capable of independent activity. Such activity may be observed in an over-distended bladder, and one can readily see that an inflamed or irritable viscus, when filled with urine, might display a relative over-distention. In certain women, Mosso and Pellancani[6] showed that contraction of the bladder walls was directly influenced by volition.

Etiology.—One may hastily pass over such well-known facts, as the influence of the time of day, of season, and of sex upon this symptom. Some children are affected during day and night, whilst others exhibit enuresis nocturna alone. The winter season invariably accentuates the disorder, and even causes it to reappear after a summer's respite. Enuresis is more common in boys than in girls (Williams found it more frequent in girls), though it is of frequent occurrence in both sexes.

It is important to study the mode of expulsion in these cases. Sometimes the urine dribbles almost continuously, sometimes it is expelled forcibly and in jets. It is necessary, also, that we should learn whether or not consciousness or the dream state accompanies the abnormal process.

In attempting a classification from an etiological stand-point, one can scarcely lay claim to originality. My only excuse for submitting the following groups is to lay additional stress upon *malnutrition* as a causative agency. (Rachford, etc.)[7] [8] [9] One may conveniently arrange cases of enuresis into five groups:

Group I.—Cases exhibiting marked malformation or disease of the genito-urinary tract. Interstitial nephritis, pyelitis; pelvic, ureteral,

or vesical calculus;[10] genito-urinary tuberculosis,[11] exstrophy of the bladder, cystitis, urethritis, or vulvo-vaginitis; urethral adhesions,[12] [13] and stricture (congenital or acquired); epispadias and hypospadias,[14] etc., have all been accompanied by involuntary passage of urine.

With the gross structure anomalies this paper has nothing to do. Inflammatory affections, however, show us how abnormally powerful afferent impulses may give rise to purely reflex urination; and how, also, direct irritation of the bladder walls may lead to muscular contraction of that organ.

Group II.—Individuals who present developmental or acquired disease of the central nervous system. Imbecility and idiocy naturally demand primary attention here. In these cases there appears to be either lack of proper psycho-sensation, a lack of moral responsibility, or else a certain method which attaches itself to the filthy habit. We have analogous phenomena exhibited by insane children.

Similarly the cerebral arc is interfered with in cases of meningitis. Indeed, involuntary micturition may appear in all febrile affections accompanied by stupor or delirium.

Upon abstract grounds, one would decide that all affections interfering with cerebro-spinal continuity would interfere with normal micturition; but Gowers[15] states that in Friedreich's disease the sphincters are not affected. In spina bifida[16] and paraplegia enuresis may be present.

We shall now pass on to the essential portion of our study,—viz., the so-called functional enuresis. Clinically this study is more important, because the cases are more numerous, and also because the symptom calls our attention to various underlying morbid states more or less amenable to treatment. It might be well to preface further remarks with the statement that our study has led us to believe both inductively and from careful observation of many cases that "functional enuresis" is nearly always dependent upon faulty metabolism.

The following groups might be spoken of as constituting a *nutritive series:*

Group III.—Cases in which are found marked anatomical evidence of past or present malnutrition.

Repeatedly, at the Polyclinic Hospital, we have stripped cases of functional enuresis to observe the deformed chest, the prominent belly, and the other well-known signs so characteristic of the rhachitic state, and we should certainly place *rhachitis* at the head of this group. The profound nervous effects accompanying or following in the wake of this disease are not sufficiently appreciated nor generally understood. (Taylor.)[17]

Again, children of the *phthisical* or *scrofulous types*, or actual sub-

jects of *tuberculous disease*, frequently exhibit the symptom of enuresis.

In another class of cases, one notes *valvular disease of the heart*, with or without myocardial weakness. In two of our cases, both girls, tachycardia, with a weakened first sound, was present, though there was no evidence of valvular disease. These cardiac cases usually display marked innutrition; the thin extremities, the bluish nails and lips, and the muddy complexion, all being too marked to escape attention.

Group IV.—Here we find nutritive disturbances which are far less apparent; but a careful study always discloses ample cause for metabolic disturbances. In this group gastro-intestinal disease, in one of its protean forms, readily excels in frequency and importance. Mucous disease is especially common in children who exhibit urinary incontinence. A Philadelphia physician (Condie)[18] dwelt upon the causative importance of stomach and bowel affections just half a century ago.

Again, enuresis frequently appears and persists during the *course* of, or following, an infectious disease. The statement that the symptom disappears during febrile states (Carter)[19] we cannot confirm. Pertussis and measles both leave enuresis in their respective tracks. Enteric fever rather frequently marks the inception of the disorder.

In one case (a little girl of 4 years, under my care) wetting of the bed commenced during an attack of croupous pneumonia, and persisted for three years. In a case still more striking, a little boy of 5 years, kindly referred to me by Dr. Edward Martin, had been troubled with enuresis, and the affection had submitted to treatment directed to his gastro-intestinal condition. He passed through an attack of pharyngeal diphtheria, which has been recorded elsewhere as of unusual mildness, but the old symptom returned during his stay in bed and remained for some time.

One could scarcely pass from this group without mentioning gout and lithemia. English writers have laid great stress upon the relationship of the uric acid diathesis to enuresis. Some American authors have dwelt upon the same association of cause and effect. As far as our experience is concerned, we have generally been disappointed in our search for this association, though lithemia without enuresis has proved of common occurrence.

True diabetes mellitus and diabetes insipidus have been accompanied by enuresis in the child. Indeed, Buckingham[20] found sugar in the urine when enuresis alone caused him to subject the urine to a chemical examination.

Group V.—Here are included cases where nutritive disturbances need not manifest themselves in palpable form, but in which we have

been led to conclude that the nutritive balance of the sensitive neuron has been interfered with. One need not reiterate the truth that nerve-cells are the tissues most sensitive to intrinsic and extrinsic influence. One need not refer to the masterly work of Hodge in this connection, nor shall your time be engaged with the thoughtful speculations of Dercum regarding the "function of the neuron." [21]

In studying these cases, inquiry regarding the family history cannot be too exhaustive. In one of our cases, five successive abortions occurred prior to the birth of our patient, and there was a history of genuine epilepsy in a collateral branch of the family. All of this was readily elicited; but not until much later did we learn that the patient himself was the subject of night-terrors.

Less prolific histories will furnish hysteria, chorea, alcoholism, and other morbid states which deserve the name of neurosis, or which bear important relations to neurotic states. Frequently the patient himself is the subject of a neurosis. Ludwig Hirt speaks of the disorder under consideration as a "reflex neurosis."

Cases in this group may exhibit simply the symptoms commonly dubbed nervous, or all gradations between these slight evidences of neurotic tendencies and so serious a disease as genuine epilepsy.

Retrograde mental development or, at any rate, retardation of normal intellectual growth is frequently noted among the patients here classed. Without care such cases may be regarded as imbecilic, but careful study will usually preclude imbecility. Thus, a neurotic child continues to wet the bed beyond the second or the third years. He henceforth becomes the butt for jests in his own family, and for the more cruel taunts emanating from companions of his own age. Corporeal punishment, prompted by a parental misunderstanding of the symptom, may add to his misery. We all understand the beautiful unity of the nervous system, which the theory of the neuron necessitates; we have already observed how powerful impulses from various parts of the body may influence the centre for the bladder walls; and thus we can readily see how such vicious extrinsic influence may serve to exaggerate the enuresis process, and how that unfortunate habit gives added stimulus to taunt and jest and punishment. So, we trace a vicious cycle, which condemns the poor unfortunate to a mental and moral limbo. The little fellow in the picture was dressed in girl's clothes to prevent him from soiling the more expensive boy's breeches. The taunts thus engendered served to make him so passionate that he became actually dangerous. More frequently such children become morose or melancholic, and in some instances they are so utterly cowed that either kindness or punishment may be met with a copious flow of tears.

O. P. Rex, H. C. Wood, and others, have already called attention to enuresis as a symptom of "*pavor nocturnus.*" This association we have twice noted. We would call attention to Coutts's[22] article in making a diagnosis of "night-terrors." The affection is not to be confounded with bad dreams.

Sydenham's chorea is frequently attended by nocturnal enuresis, and more rarely by the diurnal or mixed variety. Actual chorea of the bladder we have not seen, but Keyes reports three beautiful cases. Masturbation, a cause of enuresis to which Jacoby has given prominence, we have not noted in any of our cases. Where suspicion was aroused, our suspicions were not confirmed by questioning parents. It would seem, however, that self-abuse would exist as an evidence of neurosis rather than as a cause of enuresis.[23]

It is readily shown, then, that enuresis may be and frequently is symptomatic of a neurosis; and an extension of that thought to a consideration of the causative malnutrition of the nerve-cell, or neuron, would be neither original nor unreasonable. Suffice it that the measures which stand us in such good stead in the treatment of functional nervous disease (prolonged rest, massage, electricity, hydrotherapy, fresh air, good food, tonics, etc.) are all of inestimable value here, and furnish us with a powerful argument regarding the importance of malnutrition.

In the vast majority of cases it is our belief that sphincter tone is much below par, and that the cause exists in the state of poor nutrition of the sphincter centre in the cord. In chorea of the bladder, epilepsy, and the mental cases that we have mentioned, it would seem that slight extrinsic stimulation gave rise to forcible activity of the detrusor centre. The importance of normal cerebration, we need not dwell upon further than to recall our initial physiological considerations.

The Reflex Factor.—One could scarcely desert this realm of cause without mentioning the reflex causes of this disorder. Hypermetropic astigmatism, growths in the naso-pharynx, intestinal worms, and the adherent and elongated prepuce are all assigned varying degrees of importance by different writers. Undoubtedly, neuroses are aggravated by local sites of irritation, but we do not believe that they are caused by them. We agree most heartily with Knapp, when he says, "The essential feature of the production of many neuroses is the neuropathic state,—the degeneracy of the subject."

Treatment.—Naturally, this resolves itself into a treatment directed towards the underlying morbid state, and that which is aimed at the relief of the symptom alone. Just as the convulsions due to gastro-intestinal conditions may need chloroform, bromides, etc., to relieve

them; so may the symptom of enuresis deserve special attention even when the underlying condition has been removed. The *bed-wetting habit* may be established just as the *convulsive habit* has been formed.

Secondarily, we would divide the treatment into general and local measures, though here the line of distinction cannot always be sharply drawn.

General treatment must be moral, hygienic, and medicinal.

Uniform kindness should be extended to these little cases, though such kindness need not lack the element of firmness. Constant encouragement by hopeful suggestion is a most valuable adjunct to treatment. We cannot believe that many cases, like Trousseau's, would be helped by corporeal punishment.

The worst cases, like bad cases of chorea, hysteria, etc., are best treated by Mitchell's complete rest cure, for here we have the lurid neurosis with which to deal. With other children one may aim at more or less perfect modifications of this treatment. It will be found necessary to withdraw many of these cases from nervous influences incident to school life. Hours of rest, diet, exercise, bathing, etc., are all worthy of consideration. We believe that the majority of these children pass their urine in the early part of the night (Trousseau),—*i.e.*, in the hours of deep sleep, when physiology teaches us to believe that the normal sphincter centre should be strongly active. Therefore the time-worn custom of awakening the child *early* in the night in order that it may void urine voluntarily is a valuable measure. It must be seen to that sleep is neither curtailed, on the one hand, nor prolonged unduly upon the other.

Diet.—This must be arranged to suit the individual needs of the case. Of course, the child with lithemia would be benefited by a partial withdrawal of proteid food, whilst in gastro-intestinal catarrh readily digested foods would be demanded. As a rule, however, these cases are under-fed, and a diet into which eggs, milk, fresh meats, etc., enter will often achieve wonders. Water should be given sparingly at the evening meal, though it is not necessary to prohibit it.

Exercise.—Some of the milder cases of enuresis are permanently cured by one good outing. Light exercise in the open air, free from the objectionable element of competition, will do good in almost every case.

Bathing.—Tepid or cool baths at bedtime, followed by alternate hot and cold douching of the spinal region, are measures which we advise in a routine manner.

Drugs.—One of our stand-bys in enuresis is cod-liver oil, and some of the rhachitic cases are cured by this drug alone. On the whole, we agree with Jacoby that *strychnine* is the most valuable drug

in this disorder. It should be given boldly, though we have never had recourse to hypodermic use.[24] We prescribe for a child of seven or eight $\frac{1}{100}$ grain, three times a day, and then increase the number of pills, much as one does with mercurial pills in syphilis. Iron, quinine, and arsenic are all of use in certain cases, and may be combined with the strychnine or given alone. In mucous disease, especially when constipation be present, an alkaline mixture with senna or cascara will often stand one in good stead.

In children who sleep lightly, or who dream of the act, chloralamide in small divided doses, and sulphonal similarly used, are safe hypnotics. (Taylor.) Often three grains of either drug, given in grain doses, will prove a sufficient dosage.

In pavor nocturnus small doses of the bromides are indicated.

Local Measures.—The douching of the spinal region, especially of the lumbar spine, has already received casual mention. The genitalia may be sponged or douched in a similar manner. Dr. Prendegrast has cured many cases in the St. John's Home by the use of cold bathing (shower) alone.[25]

Electricity and Massage.—Both currents[26] have been used in attempting to relieve enuresis, and different authorities have employed these measures in many ways. Of course, one does not expect to affect directly the cells of the spinal gray matter, but may they not be indirectly stimulated when we cause the muscles supplied by them or contiguous cells to undergo contraction? It has seemed to us that a slowly interrupted current should prove beneficial upon theoretical grounds, acting much as exercise would. In one case such treatment, combined with massage of the lumbar region and perineum, seemed to yield excellent results. Electricity is such a mysterious agent in the public mind that one may well impress this treatment with *suggestion* of relief. We have not used sounds nor silver injections.

Last, but not least, among local measures one must mention *belladonna*, for in its internal administration one does not seek to relieve any underlying condition. Bearing such morbid states in mind, recognizing that enuresis is but the danger signal, applying appropriate measures for the relief of these pathological states, one may still have to face the symptom, and then belladonna or the alkaloid atropine will prove of inestimable value. Like the strychnine, atropine must be given in doses large enough to produce physiological and even slight toxicological results. The results should also be achieved rapidly.

The much vexed subject of circumcision must be touched upon. In the bad cases that I have seen, this measure has failed utterly to relieve, and in several circumcised cases, uncured, we received prompt response to proper medical treatment. In one case the circumcision

wound refused to heal because of the constant dribbling of urine over it. When the boy did recover, after several weeks in bed, it was with a much hypertrophied organ. It may be necessary to perform circumcision for some other reason; the operation is then a trifling one; but in enuresis we cannot see that it possesses any advantages over the simpler procedure of "stripping the prepuce." Other reflex causes may demand attention, not because they cause enuresis, but because they all tend to influence deleteriously the unstable nervous system of the neurotic child.

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THE SIGNIFICANCE OF THE ANACROTIC PULSE-TRACING.

By Thomas J. Yarrow, Jr., M.D.,

PHILADELPHIA.

Among those pulse-tracings that have claimed much attention, and that have been said to possess diagnostic value in cardiac lesions, one of the most important is the anacrotic tracing. The most marked form of this pulse is said by Sansom to occur in stenosis of the aorta. It has been found in health temporarily after a cold bath, and the fact is well known that Eulenberg produced it by pressure on the artery, on the distal side of the button of the sphygmograph. It has been observed in the arteries of paralyzed limbs, in atheromatous arteries without aortic stenosis, and it is sometimes present in transient albuminuria without signs of atheroma. Individuals with interstitial nephritis, and those without nephritis, but whose pulse-tension is abnormally high (or rather correctly speaking prolonged), sometimes exhibit this form of pulse-wave. Sansom found it in emphysema and spasmodic asthma. Foster says that it is frequently associated with disease or defect of the left ventricle. Osler says that the pulse of aortic stenosis is hard, slow, of moderate volume, and fairly good tension. He does not seem to lay stress on anacrotism. Pepper says that general arteriosclerosis produces a pulse similar to aortic stenosis; he further remarks that a tracing with marked tidal wave and line of gradual descent may prove of value in diagnosticating aortic stenosis. Strümpell describes the pulse as giving a low wave with a comparatively slow rise and fall of the curve, laying no stress on anacrotism. Outside of aortic stenosis it has also been observed in aortic aneurism, gout, lead-poisoning, syphilis, constipation, various neuralgias, chloroanemia, and sometimes with affections of the auriculo-ventricular valves of the left side of the heart.

In a case at the Episcopal Hospital, of a woman, aged 70 years, with marked aortic regurgitation, whose arteries were very atheromatous (especially those of the right side), a tracing taken from her radials gave the characteristic pulse of aortic regurgitation. (See below.)

Maria Ward, aged 70 years, aortic regurgitation. This patient had a recurrent pulse. When the circulation was cut off in the radial artery *above* the button of the sphygmograph the pulsation still continued below the button, and registered a pulse of obstruction somewhat of an anacrotic character. This would seem to show the part

that obstruction outside of the aorta could play in producing anacrotism.

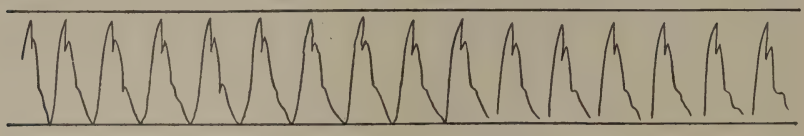

FIG. 1.—Aortic regurgitation.

Other cases in which I found the anacrotic pulse without aortic stenosis are the following: In a patient with mitral regurgitation subject to anginoid attacks apparently not hysterical. (See tracing below.)

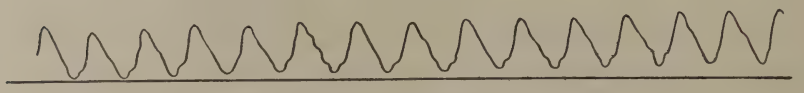

FIG. 2.—Right radial completely cut.

In a case of jaundice (obstructive), in a case of locomotor ataxia, in two cases of aortic aneurism, two cases of parenchymatous nephritis, in a case of malaria, in a case of anemia (simple), and several cases of well-marked atheroma. It was also found in aortic obstruction, but in several cases of this lesion it was absent, or would be present one

FIG. 3.—Mitral regurgitation.

day and absent the next. That it occurs in many cases of aortic obstruction is undoubtedly true, and that it occurs in other affections seems equally so from the number of instances given.

As Sansom says, the sphygmograph opens up no "royal road to diagnosis," and should not be used until "after the other means of investigation, not before." The persistence of this form of pulse in an individual for a long period would seem to show obstruction in the circulation at some point, if not in the aorta, perhaps in the kidneys or other viscera. It might be due to arteriosclerosis, where the vessels are so stiffened as to lose their normal elasticity. The object of the writer is not to decry the use of the sphygmograph, but to suggest that its evidence be accepted with great caution, and only after a critical physical examination to confirm the diagnosis.

BURIED SILVER-WIRE SUTURES AS A LAST RESORT.

By Herbert Payne Fisher, B.S., M.D.,

GERMANTOWN, PA.

While not wishing to discuss at length the merits of buried silver-wire sutures in abdominal wounds, nor advising their use under ordinary circumstances, it seems to me, in selected cases, this manner of closing the wound offers the best chance of cure. In defence of this opinion I beg to offer the following two cases, in which the buried silver-mattress suture was employed:

Mrs. L., aged 44 years, had a very large ventral hernia, following abdominal section four years previous, for which she had been operated upon unsuccessfully one year from the primary operation. The intestines and omentum were found firmly adherent, having formed numerous pockets in the subcutaneous fat. After careful and tedious dissection the sac was cut away, all bleeding points in the omentum were ligated, and the hernia reduced. The fresh edges of peritoneum were sutured together with fine silk. The muscles and fascia were then brought in accurate apposition with silver-mattress sutures. The skin wound, which extended from just above the pubis to an inch above the umbilicus, was closed with interrupted silkworm-gut sutures and firm pressure applied. The dressing became saturated, and was changed on the second day. It was not disturbed again until the twelfth day, when the skin stitches were removed. The entire wound was then found to have united by first intention. The patient remained in bed four weeks, and returned to her home at end of the sixth week. She did not wear a supporter, and at this date, six months after operation, there is no return of hernia and no irritation from the silver wire.

Patrick McS., aged 41 years; double direct inguinal hernia. The hernia appeared on the two sides simultaneously five years ago. The patient was very desirous of being able to dispense with the truss. The right side was operated upon; the method employed being a modification of Bassini's operation.

The abdominal muscles were found abnormally thin and poorly developed, offering little hope of securing a firm resisting wall. For this reason I deemed it advisable, as in the case of ventral hernia, to use the buried sutures. Medium silver wire was employed, five mattress sutures in all, the highest one being placed above the cord. The typical Bassini was further modified by including the external oblique

and the edge of the rectus in the sutures and bringing them over to Poupart's ligament, leaving only the skin overlying the cord. A subcuticular suture of silkworm gut closed the skin wound. The dressing was changed on the second day because of some staining by blood. It was not disturbed again until the fifteenth day, when the skin suture was removed. There was complete union, and the tissues felt perfectly healthy.

The temperature chart was quite remarkable. The patient had been treated for mild tertian malaria previous to operation, but had shown no symptoms for about a week, and was in excellent condition. The day following the operation the temperature rose to 99⅘° F., at once subsided to 98°, and did not rise above 98⅘° until the fourteenth day, when, after a chill, it suddenly rose to 103°, falling to normal in the evening. A calomel purge, followed by twenty grains of quinine in divided doses, were given, beginning the following evening. The rise in temperature did not recur. The patient was allowed to sit up five weeks after the operation.

Although so unpromising a case, the operation gave me hope of success. It was, however, thought best to keep the patient under observation for at least six months before operating upon the other side. A truss was therefore fitted for left side, and the patient discharged. At this date, four months after leaving his bed, the hernia has not reappeared, and the silver sutures have caused no irritation.

In both of these cases, I may add, a special hemostat was used, with smooth jaws, which simply pinch the tissues without mutilating, as does the ordinary hemostat.

ALUMNI NOTES.

Enrolment in the Medical Department of the University of Pennsylvania.

The registration in the Medical Department has finally been completed, and the enrolment of classes is as follows:

Fourth year class	192
Third year class	249
Second year class	228
First year class	202
Special	5
	876

This shows a loss of forty-one students from last year's total number, due to the decreased size of the first and second year classes, the former having seventy-eight less men enrolled than last year, while the second year class is smaller than last year by twenty-two men. The third and fourth year classes show an increase respectively of eleven and forty-four over the corresponding classes of last year.

Appointments.

Dr. Aloysius O. J. Kelly, of the Class of 1891, has been appointed pathologist to the German Hospital, Philadelphia.

Dr. J. Dutton Steele, of the Class of 1893, has been elected microscopist to the Presbyterian Hospital, Philadelphia.

Dr. David L. Edsall, of the Class of 1893, has been elected visiting physician to St. Christopher's Hospital, Philadelphia.

Dr. Joseph Whitman Sherer, Class of 1895, has been appointed adjunct professor of Physiology in the University Medical College, Kansas City, Mo., to lecture on general physiology, excluding the nervous system.

A Gymnasium for the University of Pennsylvania.

A movement has been started which has for its object the raising of $200,000 for the erection of a gymnasium on the University grounds. A meeting of the Alumni Gymnasium Committee was held in the University Club on November 15, 1897. About fifty prominent graduates were present. The Provost opened the meeting with a few introductory remarks on the need of a new gymnasium, and called special attention to the fact that subscriptions should be expected no less from outside supporters of the University than from graduates.

The chairman, Dr. J. William White, conducted the remainder of the meeting. A motion was passed authorizing the appointment, by the chair, of an executive committee of twelve, who should formulate definite plans for procedure in the collection of subscriptions, and who should report at the next meeting, to be held in the same place on November 29. It is understood that the plan for collection will be to have a small subcommittee of one or two in charge of each class. The treasurer of the University will be the treasurer of the committee.

Necrology.

Dr. Harrison Allen died suddenly at his home in Philadelphia, November 14, 1897. At the time of his death Dr. Allen was emeritus professor of Comparative Anatomy in the University of Pennsylvania.

Dr. Allen was born in Philadelphia in 1841. Having graduated from the Central High School in 1856, he entered the Medical De-

partment of the University, and received his degree in medicine in 1861. After a year as resident physician at the Philadelphia Hospital he entered the regular army as assistant surgeon. From 1863 to 1865 he had charge of the Fairfax Seminary and Mount Pleasant Seminary. In 1865, at the time ranking as brevet-major, he resigned from the army in order to accept the chair of Comparative Anatomy and Zoology in the Auxiliary Department of Medicine in the University, first established by Dr. George B. Wood. Dr. Allen was then only twenty-four. He held the position until 1878, when he obtained the chair of Physiology in the Medical Department. From this he resigned in 1883, owing to the growth of his practice. He then became emeritus professor of Physiology, which position he held until 1883.

After the death of Dr. Joseph Leidy, in 1891, Dr. Allen offered his services for the chair of Comparative Anatomy in the Auxiliary Department of Medicine. He also volunteered to give graduate students opportunities for original research. During this time Dr. Allen published a study of animal locomotion. He accepted the rectorship in Dr. Isaac J. Wistar's new Institute of Anatomy. The tax on his time, however, obliged him to resign the position in a year. He was also visiting surgeon of the Philadelphia Hospital from 1874 to 1878, and assistant surgeon of Wills Eye Hospital from 1868–1870, and of St. Joseph's Hospital from 1870–1878. He was professor of Anatomy at the Philadelphia Dental College, 1866–1878.

Dr. Allen's writings include about a hundred monographs, papers, and books on various phases of medicine. The most notable are "A Monograph on the North American Bats;" "Outlines of Lectures on Comparative Anatomy;" "Studies in the Facial Region;" "On the Life Form in Art;" "System of Human Anatomy;" "The Stage of the Development of the Bat," and "Clinical Study of the Skull." He has composed numerous works on diseases of the nose and throat.

At the Columbian Exposition Dr. Allen was a judge on anthropology. He was a member of the Academy of Natural Science, Natural History Society of Boston, Pathological Society of Philadelphia, Biological Society of Washington, Philadelphia County Medical Society, American Laryngology Association, Neurology Society of Philadelphia, Historical Society of Texas, and the American Association of Anatomy. He was a correspondent of the Society of Natural Sciences of Chili, and corresponding secretary of the Academy of Natural Sciences, 1868; vice-president of the Pathological Society in 1877; president of the American Laryngology Association in 1886, of the American Association of Anatomy in 1891–1893, of the Contemporary Club of Philadelphia in 1894 and 1895, and at the present time was president of the Anthropomorphic Society.

Dr. Allen has been connected officially with the University for thirty years. This length of service has been surpassed by but five professors, to wit: Ex-Provost Stillé, M.D., LL.D.; Francis A. Jackson, A.M.; Ex-Vice-Provost E. Otis Kendall, LL.D.; J. Peter Lesley, LL.D.; and Richard F. Penrose, M.D., LL.D.

In Memory of Dr. Harrison Allen.

The Faculty of the Department of Philosophy of the University of Pennsylvania, at a meeting held recently, adopted the following minute regarding the death of Professor Harrison Allen, M.D., and directed that a copy be sent to Dr. Allen's family:

The Faculty of the Department of Philosophy of the University of Pennsylvania has heard with profound regret of the death of Dr. Harrison Allen, emeritus professor of Comparative Anatomy in the University.

Dr. Allen was officially connected with the University for more than thirty years. He entered its Faculty in 1865 as professor of Comparative Anatomy and Zoology in the Faculty Auxiliary to Medicine, and, after acceptable and distinguished services in this department and in the Department of Medicine as professor of Physiology, was elected, in 1891, professor of Zoology and Comparative Anatomy in the Faculty of Philosophy. The eminent Professor Leidy had just died, and the gap made by this loss had been, it was felt, appropriately filled by the appointment of Professor Allen.

His published work testifies to his zeal for scientific investigation and to the remarkable energy with which he utilized the few moments of leisure left by the practice of an arduous profession.

In his association with his colleagues in our institution and with the students who enjoyed his instruction the uniform gentleness and kindly interest manifested by him in their work and progress was ever a quiet and steady encouragement to them. The breadth of his sympathy with everything that pertains to science and scholarship impressed at once all who came in converse with him, and the modesty which led him so often to take the attitude of a learner where he might have spoken authoritatively was one of his most marked characteristics. To some it has come as a lesson and an example.

An earnest seeker after truth, a modest, kindly gentleman has been lost to the University and the community. Feeling this deeply, we, the Faculty of Philosophy of the University of Pennsylvania, desire to express our sense of this loss and our sympathy with his family in their bereavement.

Dr. William Henry Corse, of the Class of 1872, died at Philadelphia, October 26, 1897. Dr. Corse was born at Smyrna, Delaware, in 1820.

Dr. John E. Mount, of the Class of 1845, died at Mountsville, Virginia, October, 1897.

Dr. William Fitzhugh Edwards, of the Class of 1878, died at New York, October 27, 1897.

Dr. Selden W. Noyes, of the Class of 1868, died recently at his home in Higganum, Connecticut.

Methylene Blue in the Diagnosis of Renal Permeability.

At a recent meeting of the Société médicale des Hôpitaux, a report of which is published in the *Journal des Praticiens* for June 26, M. Achard stated that he had gathered fifty new observations and performed eighteen autopsies which confirmed the results previously obtained by him. In twenty-two cases of normal elimination of methylene blue he had always verified the integrity of the kidneys at the autopsy. Of twenty-eight cases of tardy elimination, thirteen had shown renal lesions at the autopsy.

It was not only to medicine, properly so called, he said, that the test of methylene blue might furnish useful results, but also to surgery, by indicating if the kidneys were performing their functions in a normal manner. He cited an interesting case which had come under Dr. Schwartz's observation as a remarkable demonstration. In this case the patient was suffering from nephridrosis, and catheterism of the ureters enabled the physician to collect the urine from each kidney separately. It was ascertained that the methylene blue did not pass through the kidney of the diseased side, but later on through what had been considered the healthy kidney, the urine of which, moreover, contained traces of albumin.

Concerning the therapeutical effects, due to the action of the methylene blue on the albuminuria, ordinarily there were none.

M. Hirtz stated that he had employed this drug six times in cases of albuminuria without any appreciable benefit. M. Chantemesse had given from twelve to fifteen grains a day with no result.

EDITORIAL.

PTOSIS OF THE ABDOMINAL VISCERA.

Every physician who has been connected with a large gynecological clinic must have had an experience similar to that of Stone, who says, "No one thing strikes me more than the comparatively small number of cases to which a distinct etiologic cause can be given." An explanation of a certain class of these cases has been made by Glénard ("Application de la Méthode naturelle à l'Analyse de la Dyspepsie nerveuse; Determination d'une Espéce," *Lyon Médicale*, 1885). The view advanced was that many instances of nervous dyspepsia, especially those of the intestinal type, for which no other satisfactory cause could be found, were due to ptosis or prolapse of the abdominal viscera. This subject has been carefully reviewed recently by Drs. Stone, Lund, and Dole (*Boston Medical and Surgical Journal*, September 30, 1897).

This condition results from relaxation or stretching of the ligaments holding the organs in place, and from loss of the normal supports. Any or all of the abdominal viscera may thus become displaced. Prolapse of all of the contents of the abdomen has been called splanchnoptosis by Ewald. Other writers have used the term enteroptosis to designate the same condition; but it seems better to reserve the latter word for the cases of prolapse of the intestines only, which it implies etymologically. Prolapse of the stomach only would be called gastroptosis; of the liver, hepatoptosis; of the kidney, nephroptosis, and so on.

Nephroptosis, or movable kidney, has been long recognized and treated, and the relief that has followed nephrorrhaphy in many of these cases has been eminently satisfactory. The claim made by Glénard that the symptoms usually ascribed to floating kidney were really due to the condition which he called enteroptosis cannot be held to be universally true; at least it has been demonstrated that fixation of a movable kidney is followed in many instances by complete and permanent relief. On the other hand, prolapse of other of the abdominal organs, particularly of the stomach and intestines, has been observed so often post mortem, as well as during life, that one can no longer doubt its occurrence.

It is probably comparatively rare that one organ only is involved

in this condition. The prolapse begins, according to Glénard's theory, by ptosis of the hepatic flexure and first portion of the transverse colon, being dragged down by the undue amount of fecal contents which result from constipation. The malposition thus produced causes a sharp angle at the splenic flexure, which still further impedes the fecal current. The weight of the now distended colon, pulling upon the stomach, especially upon the pyloric portion, causes a sharper flexure in the duodenum than normal, which impedes the escape of the contents of the stomach and favors gastric dilatation and ptosis. The entire mesentery then stretches, hepatoptosis from traction on the gastro-hepatic ligament, and nephroptosis due to sagging and loosening of the peritoneal covering of the kidneys. The condition which Glénard considered typical was prolapse of the large and small intestine, the stomach, and one kidney (usually the right).

Among the causes which have been assigned for splanchnoptosis are repeated pregnancies, over-exertion, injuries, tight-lacing, and everything which causes a relaxed condition of the abdominal walls.

The symptoms, broadly speaking, are those of "nervous dyspepsia." Constipation is usually a prominent feature, and considerable stress has been placed upon an abnormal pulsation of the abdominal aorta, which may be both seen and felt. If, in addition, prolapse of the stomach can be determined by percussion after distention with air or water, and if either kidney (usually the right) is movable, the presence of enteroptosis would appear to be established. It may be possible also to determine that the transverse colon is prolapsed by distending it with air, when it may be seen and felt if the abdominal walls be thin and relaxed, or outlined by percussion. The cause of the symptoms in these cases is due to disturbed function, brought about by the malposition of the organs, and, in addition, according to Ewald, by the stretching of the ligaments containing the sensitive sympathetic nerves.

The treatment recommended for this condition consists in a proper abdominal supporter, exercise, abdominal massage and electricity, and attention to the various functions. The use of the abdominal bandage gives immediate relief in some cases, and while its employment may be necessary, especially in the beginning of the treatment, every effort should be made to improve the tone of the abdominal walls, as the constant use of a supporter would tend to still further weaken the muscles. The wearing of tight corsets is objectionable, and the skirts should be supported from the shoulders instead of from the waist.

In the *British Medical Journal* for January 4, 1896, Treves reports a case in which he performed abdominal section for Glénard's disease.

The symptoms had resisted all other forms of treatment. The liver, which was quite movable, was sutured up against the parietes close to the xiphoid cartilage. The patient was restored to health.

We can all, probably, agree with Lund in the statement that a more general realization of the importance of enteroptosis as a factor in many conditions may, it seems fair to expect, lead to certain not unimportant results.

(1) A rational system of therapeutics may be more generally applied to a large class of cases of "nervous dyspepsia."

(2) The same treatment will probably relieve a large number of patients who are subjected to local gynecological treatment, with the view of benefiting general and gastro-intestinal symptoms supposed to be "reflex" to various local troubles.

(3) A more rational means of prognosis in cases of movable kidney, and of decision as to mechanical or operative treatment may be possible. For instance, in the very large class of cases where movable kidney is complicated with enteroptosis, although by suturing the kidney in position we may relieve the symptoms due to torsion of the renal vessels or ureter and the like, we will probably find, as we all know from our own experience to be sometimes the case, that the general neurasthenic and gastro-intestinal symptoms may not be benefited by the operation. It is hardly fair to expect that suturing the kidney in position will cure dilatation of the stomach or ptosis of the other viscera. The propriety of following a nephrorrhaphy by measures calculated to increase and maintain increased abdominal pressure can hardly be questioned. Cases of movable kidney which are found on examination to be uncomplicated by enteroptosis will naturally stand more chance of benefit from nephrorrhaphy.

THE PROPOSED GYMNASIUM FOR THE UNIVERSITY.

We desire to call the attention of our graduates, and others interested in the welfare of the University of Pennsylvania, to the movement having for its object the erection of a well-equipped gymnasium, a brief outline of the preliminary steps of which are given on page 165 of this issue. This is one of the most important, if not the most important, of the present needs of the University. The task of the committee having this matter in charge will be made much lighter and their efforts will succeed at the earliest possible time if aided by the united effort of our alumni. Full particulars may be obtained by addressing the chairman of the committee, Dr. J. William White, 1810 S. Rittenhouse Square, Philadelphia.

MEDICAL PROGRESS.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM PEPPER, M.D., LL.D, AND JAMES TYSON, M.D.,

ASSISTED BY

M. HOWARD FUSSELL, M.D., AND A. O. J. KELLY, M.D.

Idiopathic Osteopsathyrosis in Infancy and Childhood.

Griffith (*American Journal of the Medical Sciences,* April, 1897) reports the following case: H. E., aged 2 years and 10 months. No history of syphilis. Nothing abnormal about the labor. On the second day after labor both femurs were found to be fractured. In three weeks they were completely united. At three months the humerus and femur were fractured, as the result of a medical examination. When 9 months old he again broke his hip by falling forward in his chair. Very frequent fractures took place until the reporter saw him. At that time he was forced to be carried on a stretcher; rickets was excluded as a factor in the case. In four months he had improved and could sit up. The reporter cites sixty-six cases besides his own, and comes to the following conclusions as to this curious disease.

Etiology.—Almost all of the cases seem to have the stamp of *heredity,* and it has been compared to hemophilia as to this peculiarity. *Sex:* The transmission appears to take place through males. *Age:* The affection begins early in life. *Force* causing the break is always slight, frequently remarkably so. No especial influence is exerted by other diseases.

Pathology.—The pathology is little understood. It appears to be different from either rickets or osteomalacia. But few examinations of bone have been made, and these are unsatisfactory.

Symptoms.—Fractures,—no pain preceding the break.

Diagnosis.—Syphilis and nervous diseases should be excluded. Absence of local bone lesions should also be established.

Prognosis.—Unfavorable. Duration of life is not materially affected by the disease; but the tendency to fracture continues through life.

Treatment.—Alterations should be tried, but are experimental. Fractures should be properly dressed in order to avoid deformities.

Movable Kidney.

Noble (*American Journal of Obstetrics and Diseases of Women and Children,* Vol. xxxv, No. 1, 1897). The best method of examination is as follows: The patient's clothing should be loosened, all bands about the waist unfastened,

and the skirts supported by a nurse or assistant, so that the patient will not be embarrassed with the fear that her clothing will fall off. She should then stand before a table or desk of convenient height (about thirty inches), with the examiner seated upon her right. She should then bend forward from the hips and support some of her weight by resting her hands upon the table. She should be directed to respire regularly, care being taken to relax herself thoroughly during expiration. The examiner's left hand should be placed against the lumbar region posteriorly, and his right hand in a corresponding position in front of the kidney. By a conjoint manipulation the region between the two hands can be carefully palpated, and, if present, the kidney is easily recognized. The points to be looked for are the shape and size of the kidney, and the fact that it can readily be displaced upward beneath the margin of the ribs, and that it will return to its former location so soon as the examiner's hands no longer support it. When the kidney is compressed, as a general rule the patient complains of tenderness or pain of a peculiar character, and often makes the statement that the pain causes a feeling of faintness or nausea.

By this method it is possible not only to diagnose the existence of movable kidney, but to estimate with exactness both the extent of the displacement and the degree of the movability. This undoubtedly is one of the chief merits of the method of examination, because of its very positive bearing upon the indications for treatment.

Typhoid Perforation treated by Surgical Operation.

Finney (*Johns Hopkins Hospital Bulletin*, May, 1897). This operation was done first in 1887. Since that date there have been fifty-two cases operated upon. According to statistics, about one to two per cent. of typhoid cases have perforation. It occurs more frequently in mild than severe forms. Symptoms may be severe, mild, or wanting. The most constant symptoms are sudden, severe abdominal pain, increasing in severity. There may be collapse, nausea, or vomiting. There is a leucocytosis. It is impossible to state the number of recoveries without operation. In the fifty-two cases of perforation operated upon there have been seventeen recoveries. The condition is often taken for appendicitis, and, indeed, the perforation frequently occurs in the appendix.

The conclusions at which the writer arrives are as follows: (1) The signs upon which most reliance is to be placed are severe, continued, abdominal pain, occurring in the third or fourth week of an attack of fever, coupled with nausea and vomiting, and at the same time a marked increase in the number of white corpuscles.

(2) The surgical is the only rational treatment of perforating typhoid ulcer.

(3) There is no contraindication to the operation, surgically speaking, save a moribund condition of the patient.

A Case of Typhoid Fever.

Courmont and Martin (*Lyon Médical*, March 7, 1897) report an interesting case of typhoid fever with death, in which the post mortem showed but few lesions of typhoid, but complete consolidation of part of the left lung. Careful bacteriological examinations were made, and the pneumonia was found to be due entirely to pneumococci and not to Eberth's bacillus. Serum tests were also made with the blood, and serum from various parts after death.

The Widal reaction was found on the first day in which the patient entered the hospital; after death the test persisted in the serum from pericardium, and from the pleural sac, but was absent in *the splenic pulp.*

Purulent Ophthalmia.

Daly (*Boston Medical Journal,* August 5, 1897) states that it is impossible to make a diagnosis from clinical symptoms alone, early in the disease, between acute contagious conjunctivitis, diphtheritic conjunctivitis, pneumococcus conjunctivitis, membranous conjunctivitis not due to Klebs-Löffler bacillus, and also between gonorrheal conjunctivitis, and pneumococcus infection of the tear-sac. He claims that the diagnosis can always be certainly and quickly made by making a smear cover-glass from the exudation in each case. In the diphtheritic cases the characteristic bacilli can be readily seen in a smear preparation, or the growth can be found by culturing in a tube. The gonococcus can also be readily distinguished when it exists, and the diagnosis made certain by the use of Gram's method.

Primary Sarcoma of the Pleura diagnosed from Cells found in the Pleuritic Exudate.

Martin (*Medical News,* October 16, 1897) gives the history of a case of pleural effusion in which the exudate was examined, a diagnosis of spindle-celled sarcoma of the pleura made, and this diagnosis was confirmed post mortem.

The exudate contained groups of typical spindle cells, as differentiated from the flat cells of the endothelium commonly found in pleural exudate and also differing from the irregular spindle cells found in plastic pleurisy. The paper is valuable as being unique in American literature, and is worth study.

Principles underlying the Serum Diagnosis of Typhoid Fever and the Methods of its Application.

Welch (*American Medico-Surgical Bulletin,* September 10, 1897), in a paper read before the American Medical Association, gives an admirable *résumé* of the entire question of serum diagnosis at that time, June, 1897. To be appreciated the paper should be read in its entirety, either in this journal or in the *Journal of the American Medical Association,* where it was published August 14, 1897. It will suffice here to give the conclusions at which this eminent authority arrives.

(1) Experience has demonstrated that the method of serum diagnosis of typhoid fever is of great practical value.

(2) The alteration of the blood, on which this method is based, is a specific effect of infection or intoxication with the typhoid bacillus.

(3) The microscopic serum-test is to be preferred to the macroscopic methods.

(4) Quantitative determinations, relating especially to the culture, the time-limits, and the dilution of the serum, are of importance, and, at least in doubtful cases, should not be neglected.

(5) As the reaction may be delayed or occasionally absent, a negative result of the test does not exclude the diagnosis of typhoid fever. The latter in

the course of the disease the test is applied, and the oftener the examinations are repeated at intervals, the less is the probability of the existence of typhoid fever.

(6) The persistence of the reaction, sometimes for years, after recovery from typhoid fever, is to be borne in mind in interpreting the reaction in febrile conditions. The appearance of the reaction and its increase during the period of observation speak for fresh typhoid infection.

(7) The danger of mistakes from positive reactions in non-typhoid cases can be guarded against in nearly all cases.

(8) Provision should be made, especially by the establishment and support of municipal or State laboratories, to render generally available to practitioners the serum-method of diagnosis, as well as other bacteriologic procedures of similar practical value.

Appendicitis.

Deaver (*Medical News*, October 16, 1897), in an article on appendicitis in relation to diseases of the uterine adnexa and pregnancy, makes use of the following sentences: "I am prepared to make the statement that I have never seen a human life lost when operation was performed immediately following the onset of the disease (appendicitis).

"I have yet to see a human life lost when, in acute appendicitis, the appendix has been removed within six to eight hours after the onset of the disease, while, on the other hand, I regret to say that I have seen many lives lost by adopting the so-called conservative methods,—namely, opium to relieve pain, allowing the bowels to remain confined, leeches, fly-blisters, turpentine stupes, any or all of which are not only useless but harmful.

"The number of patients with appendicitis who become perfectly well, patients who do not suffer between attacks, and who are not subject to the certainty of future attacks, are so extremely rare that the question of curative treatment resolves itself *into the time of operation.*"

SURGERY.

UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.,

ASSISTED BY

ELLWOOD R. KIRBY, M.D.

On the Lower Limitations of the Pleural Cavities with Regard to Certain Operations.

Melsome (*Annals of Surgery*, October, 1897) says the danger to the pleura in operating upon the kidney appears to depend upon the length of the last rib. The point where the erector spinæ cuts the twelfth rib is an excellent landmark. It can easily be felt when a patient is lying down. The twelfth

rib is sometimes absent, much more commonly it is short and fails to reach the outer border of the erector spinæ muscle; but the commonest condition of all is a twelfth rib extending beyond the outer border of the muscle; and when this is so, an incision may be made upward into any part of the rib which projects beyond the outer edge of the muscle without wounding the pleura.

It is very important to count the ribs from above downward, so as to ascertain whether the lowest rib which can be felt projecting beyond the outer border of the erector spinæ muscle is the eleventh or twelfth rib. The chief danger to the pleura then depends much more on the rib variation than upon variations in position of the line of reflection of that membrane, which, though it may lie below the mean level, is always reflected from the inner surface of the twelfth rib, when present. In eleven cases examined by the author it varied between one-quarter and three-quarters of an inch. The line of reflection was never observed to occupy a lower limit than the point where the twelfth rib, had it been long enough, would have crossed the outer border of the muscle. On the contrary, it is usually well above this point. As to the lower level of the pleura on the sides of the body, it varies with the obliquity of the ribs, and usually the first free cartilage is a very good guide to the lowest level of the pleura on the side of the body. Its mean level is one and one-half inches above this cartilage on the left side, and two inches on the right side.

The Risk attending Forcible Correction of Distortion Due to Hip-Disease.

Sainton (*Revue d'Orthopedie*, No. 1, 1897) states that in faulty position of the thigh, with complete ankylosis of the hip, osteotomy near the upper extremity of the femur is the safest and most effectual method of treatment. If, in cases of distortion and stiffness following hip-joint disease, there be still some motion, and the displacement and rigidity be due to the contraction of muscular and ligamentous structures, the limb may usually be restored to the correct position by simple manipulation under anesthesia. This plan of treatment, however, is held to be a dangerous one by the author, who reports five cases in which, after an apparently successful result, death occurred from tuberculous meningitis in the course of two or three months. The relation of the fatal meningitis to the surgical treatment is suggested by the fact that this event occurred in no less than 19 per cent. of twenty-seven cases, in which Kirmissen restored the normal position of the limb distorted after hip-disease, by a bloodless and not very forcible procedure. The danger of meningitis and other results of tuberculous infection is due, the author believes, to the breaking up of encysted caseous deposits about the seat of the old articular disease.

Operative Treatment of Exophthalmic Goitre.

Schulz (*Berliner Klinik*, June, 1897) reports fourteen cases of Basedow's disease under the care of Kümmell, which were treated by partial removal of the enlarged thyroid body. In the majority of these cases the symptoms of the disease were very severe, and rendered life almost intolerable. Twelve of these patients, it was stated, were completely cured, and enabled to resume their occupations. In two cases the operation was followed by much improvement, and there is every probability of the exophthalmos, the sole persisting symptom of the disease, disappearing in a short time. There could be no

doubt, the author asserts, that each of these fourteen patients presented well-marked and very decided symptoms of Basedow's disease. Frequent observations upon patients after operation, during intervals of from two to seven years, have convinced the author that the objections to partial thyroidectomy on the ground of probable relapse do not hold good. Only in one case was there any return of the enlargement. In all other cases the remaining portion of the gland showed a tendency to shrink rather than increase in size.

A New Method for the Radical Cure of Inguinal Hernia.

Fowler (*Annals of Surgery*, November, 1897), in estimating the value of the new procedure, says, in view of demonstrating that the obliteration of the internal ring and inguinal canal is possible without resorting to castration, the most efficient of the formerly practised methods of radical cure of inguinal hernia. This is made possible by the method of intraperitoneal transplacement. The cord in its new position lies in close approximation to the line of suturing of the peritoneal surfaces. Adhesions occurring under these circumstances would be located similarly to those following an ordinary abdominal section, and as little likely to do harm as the latter.

As far as the author has been able to ascertain from the experience of other surgeons in the instances in which recurrence has taken place following the various methods of displacing the cord anteriorly, as in the operation of Bassini and its modifications, the course pursued by the hernia has been directly forward, following the cord in its course through the muscular wall of the abdomen.

In answer to the objection that the formation of a new external ring, made necessary in order to permit the cord to emerge from the peritoneal cavity, may lead to a recurrence of the hernia at this point, Fowler calls attention to the fact that the new ring is so placed as to rest upon and somewhat posteriorly to the pubis. To accomplish this he terminates the incision through the transversalis fascia and peritoneum as low down as possible, the cord emerging from the new opening in such a manner that its first course is upward and forward before passing over the bone. In addition, the outer edge of the rectus muscle is carried outward by suturing, in order to strengthen Hesselbach's triangle, as well as the final place of emergence of the cord. An osteoplastic transplantation may be accomplished by chiselling away a portion of the bony attachment of the muscle. This rarely becomes necessary.

In recapitulating the steps of the operation, the author includes the following:

(1) A curved incision which furnishes easy access to all the parts involved in inguinal hernia.

(2) Splitting the anterior wall of the inguinal canal from the external to the internal ring.

(3) Isolation of the cord and sac together from the surrounding parts, after which these are separated from each other and cleared well up to the internal ring.

(4) Double ligature of the deep epigastric artery, with sufficient space between the ligatures to permit of incision.

(5) Cutting away of the neck of the sac and incision of the posterior wall of the inguinal canal and Hesselbach's triangle.

(6) The cord is transplanted into the peritoneal cavity from the site of the internal ring to a point below the level of the pubic bone.

(7) Broad approximation and suturing of the peritoneum and transversalis fascia in front of the cord.

(8) Obliteration of the internal ring and inguinal canal by accurate suturing, and strengthening Hesselbach's triangle and the new point of emergence of the cord by outward displacement of the pubic attachment of the corresponding rectus muscle.

THERAPEUTICS.

UNDER THE CHARGE OF

HORATIO C. WOOD, M.D., LL.D.,

AND

ARTHUR A. STEVENS, M.D.

Hot-Air Treatment of Painful and partially Ankylosed Joints.

Frazier (*Annals of Surgery*, October, 1897) calls attention to an apparatus which has been employed in a series of cases in the University Hospital, where some 300 baths were given to test its efficiency.

The required temperature can be obtained quickly, in from ten to fifteen minutes, and the apparatus is substantially but simply constructed, and involves nothing that can get out of order or require repair. The cases that were treated included acute and chronic articular rheumatism, gonorrheal rheumatism, gout, traumatic arthritis, synovitis, teno-synovitis, and fibrous ankylosis.

The method of administering the bath was as follows: The patient's pulse and temperature were first taken and recorded. The limb, first being completely enveloped with a piece of lint, which was wrapped loosely about the part, was then placed in the cylinder. The time allowed for each bath was from three-quarters of an hour to an hour. At intervals of twenty minutes the door of the cylinder was thrown open momentarily to allow of the ingress of a fresh supply of air. If the patient perspired freely, this opportunity was taken advantage of to wipe the limb thoroughly dry. If this precaution is not taken, says Dr. Frazier, and the limb is allowed to remain bathed with sweat, there is the possibility, if the temperature is exceedingly high, of a superficial burn resulting. This happened in several cases where the precaution was not taken. The degree of temperature that was employed varied, some patients bearing with perfect comfort a degree of heat which would be extremely painful to others. The average was about 300° F., although in one case the temperature reached 375°, to which the patient seemed quite indifferent. The frequency with which the baths were given varied with the severity of the case; usually, however, they were administered on every other day.

The author states that in cases in which there is a diathesis, either rheumatic or tuberculous, this treatment could have no beneficial constitutional effect. As regards the relief from pain which has been noted, two explanations may be considered, he says. One is that the exudate, both around and

possibly in the sheaths of the nerves themselves, is responsible for pain, and when this exudate is all or in part removed the pain is correspondingly diminished. Another explanation, continues Dr. Frazier, is that the high temperature has an anesthetic effect on the nerve filaments themselves. In cases in which there is purely a synovial effusion to deal with, if this hypothesis is true, if dilatation of the blood-vessels does take place, if the lymphatic circulation is stimulated to more vigorous action, this method of treating an effusion is, he thinks, at least a rational one. In cases of tuberculous joints in which there is infectious granulation, he believes that this treatment could have no curative effect on the specific lesions. Beneficial results, however, may be expected after the active process has subsided and there remain troublesome adhesions which cause more or less ankylosis.

In gonorrheal rheumatism, which so stubbornly responds to present methods of treatment, says Dr. Frazier, we can hope for little more than in the one just under discussion. The symptoms are kindled by the bacteria or their toxines, and while the latter continue to be absorbed and keep alive the morbid changes in the articular and circumarticular structures, no positive results should be expected. When the gonorrhea itself has been cured and the activity of the morbid process subsides, and we are confronted with a joint crippled in its movements by bands of adhesions, we may rightly and reasonably expect that the adhesions can more readily be broken up and the function of the joint restored by the hot-air treatment.

The author maintains that for the relief of joint affections of traumatic origin this method of treatment is most useful and sometimes indispensable, and the results obtained can be called permanent, for when once the joint is restored to its normal functional activity there is no latent flame of an inherent or acquired diathesis to kindle anew the inflammatory process.

Dr. Frazier recommends this method in the treatment of the sequelæ of any joint injuries which have proved intractable to the more commonplace remedies. He thinks there is a certain field for its use,—namely, in cases in which internal remedies and local applications have failed to relieve the pain.

Sulphonal in the Night-Sweats of Phthisis.

Combemale and Deschemocker (*La Médecin Moderne*, September 11, 1897) report good results from the use of sulphonal, in doses of fifteen to thirty grains, in the night-sweats of phthisis. The drug was given daily at bedtime and continued for two weeks. No serious symptoms were noted. In one case, after two weeks' use of the drug, there was slight intoxication, which disappeared when it was discontinued. The good effect was frequently noticeable for several days after suspension of the treatment. In one patient the sweats disappeared after the third dose.

Senecio in Menstrual Disorders.

Fothergill (*Medical Chronicle*, September, 1897) reports the results of his personal observations during experiments with this drug. The cases in which he employed the preparations of senecio he divides into four groups as follows: (1) In pregnant women; (2) in amenorrhea without pregnancy; (3) in persons menstruating regularly; (4) in dysmenorrhea.

In the first group seven cases are cited by the author, which show, he

thinks, that senecio will not cause abortion or in any way influence the course of pregnancy. In the second group, comprising ten cases which were all true functional amenorrhea, the senecio acted very well. No general disease, such as anemia or phthisis, was present, and there was no deficiency, congenital or other, of the reproductive organs. The nervous mechanism which initiates the menstrual flow was, however, inactive in each case; senecio appeared to be effective in stimulating it into action. In cases of anemia, however, and other conditions of exhaustion due to disease, he says, he has found senecio quite inactive in restoring menstruation. In such cases the cause of amenorrhea is, of course, that the patient has no blood to spare, and treatment by a direct emmenagogue cannot be expected to have any effect, while indirect treatment by food, iron, etc., is indicated.

Concerning the third group, the author goes on to say, certain minor gynecological operations should be done soon after a menstrual period, and both patient and operator are often put to inconvenience by having to postpone the date of operation while waiting for menstruation to occur. In several cases of this kind it was interesting, he says, to find that the administration of senecio was followed by the appearance of the menstrual flow earlier than it was expected. The results, he remarks, are of value only in the cases of women who menstruate with perfect regularity, and six experiments were made in cases of this nature. They show that senecio hastens the flow, but that it does not increase it in quantity. On the contrary, a period thus brought on prematurely appears to be of shorter duration than one occurring at the natural time.

Regarding the fourth group, senecio was given in four cases of dysmenorrhea, with no organic disease of the reproductive organs, in which numerous remedies had previously been tried with varying results.

The results of these experiments have led the author to agree with Murrell that senecio is not an ecbolic, also that the drug will not provoke menstruation in cases of marked anemia or advanced phthisis, but that it will do so in cases of functional amenorrhea. Murrell, however, he continues, thinks that senecio increases the quantity of the discharge, but the author's cases point to the opposite conclusion. He states that the views of Bardet and Bolognesi are identical with his own on these points, though he dissents from their views as to the mode of action of the drug. As to dysmenorrhea, he continues, Murrell, Dalché, and Heim found the drug useful in certain cases, while he is inclined to agree with Bardet and Bolognesi that it will not be found of much use for the relief of pain.

Finally, he is of the opinion that the pharmacology and chemistry of the plants of this genus should be worked out by competent hands, and that those interested in disorders of menstruation will find the drug worthy of a clinical trial.

The Purification and Sterilization of Drinking-Water.

Kontkowski (*Gazette hebdomadaire de Médecine et de Chirurgie*, September 16, 1897) read a paper before the Twelfth International Medical Congress, at St. Petersburg, in which he made the following points:

(1) From the practical point of view, it is important to distinguish between the procedures that have for their object the purification of drinking-water and those designed to sterilize it.

(2) The purification of water on a large scale, as for the supply of a city,

has for its objects to deprive it of injurious substances and to make it clear, colorless, free from disagreeable taste, and sufficiently aerated. Purified water should not contain pathogenic microbes or more than a small number of harmless microbes. Sterilized water should be sterile,—that is to say, it must not contain any microbes capable of development.

(3) From the hygienic point of view, the purification of drinking-water is imperative in all cases in which surface-water liable to contamination is to be used by human beings.

(4) The sterilization of water is to be prescribed only in particular cases and for limited collections of persons, as during an epidemic, in schools, in camps, in hospitals, etc.

(5) The sure and steady sterilization of water cannot be effected at present, except by such processes as boiling and distillation.

(6) Filters, large or small, with or without the use of reagents of electricity, do not give an absolute guarantee of the permanent sterility of purified water.

(7) The only process that at present seems applicable to the purification of water on a large scale is slow filtration through sand, with or without oxidation of the organic matters by means of aeration, electricity, or harmless reagents.

(8) The best sources of water are always to be sought for in springs or in subterranean sheets of water. These should be protected by proper regulations.

Curative Action of Hyperemia.

Bier (*Münchener medicinische Wochenschrift*, August 10, 1897) has chiefly employed passive hyperemia in a large number of cases, especially in so-called surgical tuberculosis. The extremity is well bandaged up to the disease, and then an elastic bandage is placed above the disease. Bier maintains what he has previously said about this method of treatment, and adds that, combined with conservative operations, he has seen very good results. In some of his former cases he says that the cure is so complete as hardly to show a trace of the former disease. In cases of syphilitic disease and in two of sarcoma the disease rapidly got worse under this treatment. In gonorrheal articular affections the author has seen good results in eleven cases, so as to warrant its repetition. The inflammatory manifestations and the pain rapidly disappear. He has used this treatment in rheumatism with varying results. The best results were obtained when the hyperemia was induced in a marked degree. Cases of arthritis deformans and chronic rheumatism at times showed considerable improvement; sometimes, however, it was quite useless. In a case of genuine gout no benefit was seen. Bier was induced to try the treatment by the circumstance that vascular venous engorgement confers a certain degree of immunity against tubercle. He has tried an active hyperemia by hot air and by hot water. With hot water the effect upon superficial tuberculosis is not as great as with hot air. Lupus will heal quickly if it be so placed that it can be covered by a dry cup, the engorgement thus produced bringing about a rapidly curative effect. The method can have only a limited application here. The effect of passive hyperemia upon tuberculosis is much greater than that of an active hyperemia. Hot air gives better results in arthritis deformans and chronic rheumatism than in tuberculosis. The author discusses

the question of how hyperemia is able to influence local disease, and especially infective disease. Whatever the explanation may be, yet the efficacy of the treatment, in the author's opinion, cannot be doubted. The method must be properly carried out. The most important rule is that the hyperemia should never cause pain; on the other hand, it should rapidly relieve it. Thus, if the bandaging produce pain, it should be loosened. On the other hand, in order to secure success the hyperemia must be considerable.

OBSTETRICS.

UNDER THE CHARGE OF

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ASSISTED BY

W. A. NEWMAN DORLAND, M.D.

Atelectasis in Children who have breathed.

Harbitz (*Archives of Pediatrics*, November, 1897) reports the result of the post-mortem examination of a child, which is interesting from a medico-legal point of view. The child had been born in a hospital, had lived for half an hour, had been heard to cry, and had been seen to make regular respiratory movements by the student officiating. In spite of this the lungs were found to be perfectly airless. They were brownish-red in color, with a few pink spots, fleshy and atelectatic to the touch, and from the cut surface only some slight sanious, but not frothy, liquid could be pressed out; the cut pieces sank in water. Another proof that this child had lived was found in the distention of the stomach by air, and by its presence in the duodenum and upper part of the jejunum. The development of the child was that consistent with the beginning of the ninth month. The usual explanation given for this condition of the lungs in children who have breathed is that the lungs, on account of their elasticity during a prolonged death-agony, are emptied of air, as by every inspiration less air enters than is expired.

Purulent Ophthalmia Neonatorum.

Chartres (*Archives clinique de Bordeaux*, No. 12, 1896) has made bacteriologic examination of the pus from twenty-six cases of ophthalmia neonatorum, and has found very numerous pathogenic microbes. In 36 per cent. of the patients there were gonococci alone; in other instances there were Löffler's bacilli (12 per cent.), micrococci (12 per cent.), streptococci (8 per cent.), gonococci with streptococci (8 per cent.), and in yet other cases there were mixed germs. The worst instances were those in which there were streptococci either alone or associated with gonococci or the bacilli of Löffler. Such cases ended in loss of vision, or were complicated by a fatally terminating broncho-pneumonia. When the gonococcus alone was found in the pus the prognosis was generally good, treatment resulting in a cure. It is easy, therefore, to see that from the point of prognosis the bacteriologic examination of

the discharge at an early stage of the disease is of great importance. The treatment must be energetic from the first, and it ought to be mixed. The author does not deal in this paper with the prevention of the disease, but he remarks parenthetically that while Credé's method is good, care during labor is better still. When the disease is present, the first step must be the thorough washing of the eye with a solution of potassium permanganate, so as to reveal the state of the cornea. Chartres then cauterizes with silver nitrate on two or three successive days, with frequent eye-washing with a solution of boric acid in the intervals.

Double Ovariotomy at the Third Month of Gestation. Delivery at Term.

Perrier (*Therapeutic Gazette*, April 15, 1897) read before the Académie de Médecine, Paris, in January, notes of a case in which Monchez, of Sens, removed both ovaries in a woman, three months pregnant, for double cystic disease. The patient made a good recovery, and a live child was born at term. Numerous ovariotomies have been performed on pregnant women, but removal of both ovaries during gestation is unusual, not a dozen cases having been reported. Monchez insists that operation as early as possible is indicated when double cystic disease is diagnosed during pregnancy. The danger of waiting is greater than the danger of operating.

The Treatment of Postpartum Endometritis.

A. Solowjev (*Wratch*, No. 12, 1897), having tried several remedies with little result, reports excellent results from the use of tincture of iodine, which he employed in a series of cases of endometritis following delivery at the lying-in hospital of Moscow. It acts best when used in the early stages and as often as once or even twice daily. As soon, however, as the signs of acute inflammation subside and the secretion diminishes, the remedy should be according to the individual case, applied less frequently. Pains of varying character usually follow this mode of treatment; but, on the whole, they disappear almost within an hour of application. The method of application is as follows: The patient lies on a couch on her back, and a speculum is introduced into the vagina. If the cervix is blocked with mucus, the os is drawn down with a volsella, the portio vaginalis is irrigated, and the parts dried with aseptic cotton-wool; the canal is then swabbed with the pure tincture of iodine. In cases in which the corpus uteri is also involved the remedy is applied in the same way as to the cervix.

Antipyrin and Lactation.

Antipyrin is an excellent drug for combating the uterine colic of the recently delivered. Some authors, Guibert in particular, having claimed that this drug, given in the daily dose of two grammes, rapidly lessens the secretion of milk, it becomes important to establish by incontestable proofs that this opinion was erroneous. This is the task which M. G. Fieux (*Bulletin de Médecine de Paris*, September 5, 1897), chief of the obstetrical clinic of the faculty of medicine of Bordeaux, has undertaken. To fifteen women in the process of lacta-

tion, in whom the secretion was well established and whose children had come to term, Fieux administered antipyrin in the dose of two to four grammes in the twenty hours. He observed that the antipyrin passes rapidly into the milk, but in very small quantity (50 milligrammes to 1000 grammes of milk) and that its elimination is always complete at the end of eighteen hours. The quantity of milk remains very copious, if at least the woman continues to nurse. The drug is equally without influence upon the quality of the milk, and in particular upon the lactose, casein, and fat. Finally the daily weighing of the nursing infants whose mothers take from two to four grammes of antipyrin daily demonstrate an absence of all pernicious effect upon their health.

A Stage in the Development of the Placenta.

Hahn (*Zeitschrift für Geburtshülfe und Gynäkologie*, Band xxxiv, S. 519, 1896) reports a case of abortion at the fourth month, in which, on admission of the patient into Küstner's clinic, a fetus twelve centimetres long had already been expelled. The thin cord was in the woman's vagina, and through the os, which was wide enough to admit a finger easily, a soft body as large as a walnut projected, and turned out to be a projecting flap of the placenta, bearing the nearly marginal insertion of the cord. It was remarked that the maternal side of the placenta was nearly as smooth as that to which the cord was attached, and this smoothness extended some distance higher up. Hahn points out that in this case there was a reflex placenta of considerable size, for the smooth, thick, decidual investment which completely clothed the lower portion could, from its macroscopic appearance, its relation to the limiting ovisac, and the feeling to the touch above mentioned, only be regarded as decidua reflexa. The fact that the cord was inserted on the projecting reflex portion, and that the villous tissue exhibited most development about the insertion of the cord, Hahn considers a new proof of Kellman's theory, according to which the position of the placenta merely depends on the primitive insertion of the allantois on the chorion,—that is to say, what becomes later the insertion of the umbilical cord.

Hydramnios and its Complications.

A. P. Stoner (*Buffalo Medical Journal*, May, 1897) contributes a study of this subject in which he makes the following suggestions: (1) That cases of hydramnios are frequently complicated with cardiac or renal disease, in which case the life of the fetus must take secondary consideration. (2) That faulty presentations frequently accompany this anomaly and should be sought out early. (3) That malformations of the fetus may exist and obstruct the progress of delivery. (4) That the danger of postpartum hemorrhage is great and should be carefully guarded against. (5) That an antiseptic management is a prerequisite to the successful treatment of these cases.

A Giant Fetus.

Olano (*St. Louis Medical and Surgical Journal*, April, 1897) performed an autopsy upon a well-formed woman, aged 39 years, who had died after four days of labor-pains and an unsuccessful attempt to deliver the child by forceps.

The fundus of the uterus was just under the liver. It contained a well-formed female fetus with the head downward, which measured sixty-eight centimetres (twenty-seven inches), and weighed 10,000 grammes (twenty-six pounds). The mother had had three normal and two premature confinements.

GYNECOLOGY.

UNDER THE CHARGE OF

CHARLES BINGHAM PENROSE, M.D.,

ASSISTED BY

H. D. BEYEA, M.D.

Serumtherapy in Puerperal Infection.

Wallich (Twelfth International Medical Congress at Moscow, August 19–26, 1897; *Centralblatt für Gynäkologie*, No. 38), in a paper read at the congress at Moscow, comes to the following conclusion in regard to the use of serumtherapy in puerperal infection. After the good results which Marmorek has obtained experimentally with his very strongly prepared antistreptococcus serum, the hope seems warranted that this means will prove efficacious against the infection that arises from the streptococcus so frequently in childbirth.

His examination extended only to the point of ascertaining whether Marmorek established and demonstrated that antistreptococcus serum *is* a powerful prophylactic or healing medium against puerperal infection. After careful examination he comes to the conclusion that the mortality, after a methodical use of Marmorek's serum, remains substantially unaltered. Notwithstanding the increase in the amount of injection fluid, even to 750 cubic centimetres, he still found no reason for altering the hitherto customary method of treatment for puerperal infection.

Pinard, however, saw better results in the year of 1897 from the use of Marmorek's serum than in the year preceding.

Weinistein (of Odessa) reported some experimental tests made with Marmorek's serum. He injected cats with the serum, after having previously introduced streptococcus cultures within the cavity of the uterus. As a result of his experiments he came to the conclusion that the serum acted more as a prophylactic than as a healing remedy, and that the use of large doses and very early treatment are necessary. Zamschin, von Ott, La Torre, Carbajal, and Pinard participated in the discussion. They mostly agreed with Wallich that the streptococcus serum has not yet been sufficiently tested, and that, as a means of cure, it cannot yet be recommended. But the freedom from danger in the use of the remedy invites further tests.

The Application of Steam in Gynecological Diseases.

Pitha (*Centralblatt für Gynäkologie*, No. 27, 1897) writes that he has employed steam as an intrauterine treatment in eighteen cases of chronic hemor-

rhagic endometritis and twelve cases of uterine hemorrhage following abortion with good results. Parametritis, however, resulted, two weeks after the application, in two of the abortion cases. In the cases of endometritis the application was preceded by curettement, also in those cases of abortion where there were retained membranes, the steam being here employed to control the hemorrhage. He has also applied the treatment in three cases after the removal of a uterine polyp, once after curettement for adenoma, twice in carcinoma, and once in sarcoma of the body of the uterus, in the latter three cases to disinfect the uterine cavity before hysterectomy. The best results were gained when he used a Boseman catheter. The steam is applied for one minute. After ten days separated tissue begins to be discharged from the uterine cavity. After twenty days this is usually completed and the endometrium then regenerates. Menstruation is delayed but always regular.

The Microscopical Examination of Tissue removed by the Curette.

Coe (*American Gynecological Journal*, July, 1897) writes that women in the prime of life, having irregular hemorrhages, should be considered doubtful cases as regards the development of malignant disease. In these cases the microscopical examination of tissues removed from the uterine cavity help more by negative than by positive information. In women of advanced years, with a fairly well-marked history, especially of obstinate atypical hemorrhage, tissue removed from the uterine cavity which has a suspicious appearance justifies the making a diagnosis of malignancy, even though the microscope throws no positive light upon it. He believes it is better to risk removing a few uteri unnecessarily than to delay until the disease becomes inoperable.

PATHOLOGY.

UNDER THE CHARGE OF

JOHN GUITÉRAS, M.D.,

ASSISTED BY

DAVID RIESMAN, M.D.

The Rôle of the Vessels and the Parenchyma in Inflammation.

Professor Virchow (*Centralblatt für allgemeine Pathologie und pathologische Anatomie*, October 15, 1897) dealt with this subject in a masterly address at the Twelfth International Medical Congress at Moscow. His general conclusions are as follows:

(1) Inflammation, as at present definable, is not a uniform process with constant characteristics.

(2) According to their nature we can distinguish at least four varieties of inflammation,—the exudative, the infiltrative, the parenchymatous or metamorphosing, and the proliferative.

(3) The necessity of embracing all of these under one name is less a scientific than a practical and diagnostic one. It springs from the desire to

distinguish the inflammatory exudates, infiltrates, metamorphoses, and new formations from the non-inflammatory ones.

(4) The diagnostic interest is increased by our therapeusis, inasmuch as the different forms of inflammation demand a certain uniformity of treatment.

(5) The condition of the vessels and the local circulation present not inconsiderable differences in the various inflammations. While the inflammatory hyperemia is a prominent feature in the exudative and infiltrative inflammations, it is subordinate in the metamorphosing and proliferating forms.

(6) The state of the parenchyma is no less subject to variations. The exudative inflammations cause the least, the proliferating and metamorphosing the greatest parenchymatous changes. The infiltrations resemble the exudations. There is, however, no inflammation in which the parenchyma is not affected. In some cases the participation is chiefly passive; as a classic example of this may be cited the increased friability of the lung tissue in exudative pneumonia (hepatization), and the destructive action of many infiltrations. In other cases, as in mucous secretion, the parenchyma, through the activity of its cells, furnishes the chief component of the exudate.

(7) The common feature of the actual inflammatory changes in the vessels and the parenchyma is the fact that the cause of the changes is always to be found in an irritation which incites certain active manifestations (actions, reactions). The first consideration of the diagnostician must, therefore, always be to determine whether the process is an irritative one or not.

(8) The irritation affects the nerves as well as the vessels, the specific as well as the non-specific parenchyma. It varies with the constitution of the irritated part and the nature of the noxious agencies.

These agencies are at times mechanic, but more often chemic in nature. The irritative effects of many bacteria are dependent on chemic products.

(9) The not unwarranted comparison between inflammation and fever, which is based on the rise of temperature in the external parts, is not valid for inflammation as a whole, but, as far as such a comparison is at all possible, only for the increased fluxion to the inflamed part. Indeed, it is proper to state that the modern opposition against the essentiality of fever is in a line with the opposition, still undefined, against the unity of inflammation. There are febrile diseases and inflammatory diseases, but fever *per se*, and inflammation *per se*, have no separate existence.

Atypical Typhoid Fever.

Chiari (*Centralblatt für allgemeine Pathologie und pathologische Anatomie*, October 15, 1897), at the Twelfth International Medical Congress at Moscow, called attention to the existence of atypical forms of typhoid fever. There are forms of typhoid fever in which lesions of the mesenteric glands and ulceration of the intestines are absent. Such cases might be designated as *typhoid septicemia*. Chiari had examined at autopsy several of these cases, in which, in view of the presence of Widal's reaction, the diagnosis of typhoid fever had been made. No characteristic lesions were found, but bacteriologic examination demonstrated the presence of the typhoid bacillus. Chiari distinguishes such cases sharply from those in which the experienced eye discovers characteristic changes in the mesenteric glands without intestinal lesions, by reason of which the diagnosis of typhoid fever can be made, and in which it is confirmed by the bacteriologic examination.

CORRESPONDENCE.

Editors of University Medical Magazine:

I am in receipt of many inquiries concerning the medical laws of the State of Washington. I would say that all persons intending to practise medicine or surgery in the State of Washington are obliged to pass an examination before the State Board of Medical Examiners. These examinations are held the first Tuesday in January and the first Tuesday in July. The January meeting is held on the west side of the Cascade Mountains, and the July meeting on the east side. No temporary certificates are granted by this board, and no exception is made to this rule.

F. H. Coe,
Secretary Medical Society State of Washington.

BOOK NOTICES.

The Origin of Disease, especially of Disease resulting from Intrinsic as opposed to Extrinsic Causes, with Chapters on Diagnosis, Prognosis, and Treatment. By Arthur V. Meigs, M.D., Physician to the Pennsylvania Hospital. With 137 original illustrations. 8vo, pp. xiv, 229. Philadelphia: J. B. Lippincott Company, 1897.

The present volume aims to widen the horizon of the clinical observer by showing him that disease is rarely limited to one organ, but is, on the contrary, a wide-spread process affecting nearly every organ and tissue, and that it probably has its origin in fibrosis and disease of the intima of the blood-vessels.

As Dr. Meigs has been connected with the Pennsylvania Hospital nearly continuously for twenty-five years, he has had almost unlimited opportunity for clinical study; and as he has been in the habit of retaining for microscopical study portions of the heart, lung, liver, spleen, and kidney, and of any other tissue the appearance of which seemed to indicate disease, one feels assured that the author has an uncommonly large experience to guide him in his task. There can be no question as to his skill in histological technique. The illustrations, which are profuse, are all etched from sections which he has cut, and they are marvels of beauty and clearness.

We find it difficult to discover what the author regards as the cause of the fibrosis which he so clearly describes and depicts. He divides the causes of disease into extrinsic and intrinsic, but admits that many diseases owe their existence to the joint action of causes acting from without and from within. At the same time, he is convinced that intrinsic causes play a larger part in the causation of disease than the majority of pathologists believe. In other words, he rebels against the current tendency to ascribe so great influence to infections and intoxications. "Mere age," he says, "will produce decay and degeneration, for the very rocks disintegrate with the passage of time." Perhaps this sentence furnishes the key-note to the book, but we cannot be sure.

In Chapter II, on Diseases of Age, the author finds that the essential pathological change incident to age is "fibrosis, which is the growth and increase of morbid fibroid material." This fibrosis causes the rheumatism and the disease of heart, blood-vessels, and kidney which are incident to old age. He seems to think that this so-called fibrous tissue is not an overgrowth of normal fibrous tissue, but a new growth, and not properly fibrous tissue at all.

In Chapter III, The Origin of Disease, the wide-spread distribution of fibrosis is enlarged upon, and the author remarks upon the parallelism between the malignant diseases, cancer and sarcoma, and fibroid degeneration. "This parallelism consists in the fact that in a great majority of instances neither malignant disease nor fibroid degeneration is able to confine itself to a small district, but manifests a tendency to spread over a large extent of territory in the organism in which it has once established itself." He denies that either malignant disease or fibroid degeneration spreads by infection. As regards tuberculosis, he is startling: "Since it has been proved that cases of consumption do result from inflammation, and since at the same time it has not been scientifically demonstrated that the bacillus tuberculosis ever is its cause in human beings, but only that the bacillus is present in the altered tissues of persons suffering with the disease, it is much more logical to believe that consumption is only the result of ill-ordered growth and disintegration of the natural component parts of the organism." If it has not been scientifically demonstrated that the bacillus tuberculosis is the cause of consumption in human beings, it is probably because no one has cared to inject into a human being a pure culture of the bacillus, as has been done in animals. Typhoid fever the author cannot believe to be a specific disease, and of diphtheria he says its mode of origin is unknown.

In Chapter IV, The Blood-Vessels, the author is at his best. His sections of blood-vessels show unmistakably "that the intima is immeasurably more often the seat of disease than are the two other coats."

In Chapter V, The Heart, the author shows that the capillaries penetrate the muscle fibres of the heart, and that in disease the fibres are often hollowed out, in some cases becoming cysts. The origin of these cysts he believes to be in the blood-vessels themselves. The larger number of efferent vessels are structurally identical with capillaries. The fat, he says, is an especially vulnerable portion of the

heart, and disease is even more prone to arise upon the surface of the heart than in the deeper portions. All hypertrophied hearts he considers to be diseased hearts, and he denies the existence of compensatory hypertrophy, as ordinarily described and understood.

In successive chapters on the lungs, liver, spleen, stomach, intestines, kidney, and spinal cord, the author describes and depicts the same fibrosis which has already been described in connection with old age and the blood-vessels. The cysts in spleen, kidney, and liver he believes have the same origin as in the heart,—namely, from the blood-vessels.

In Chapter XIII, on Diagnosis in Chronic Disease, the author makes a strong and timely plea for the recognition of the systemic character of disease. He gives, also, some very useful hints as to the diagnosis of disease of the lung and heart. Dulness at the bases of the lungs, with weakness or absence of breath-sounds, and diminished vocal resonance and fremitus are found, he justly says, more frequently to indicate a soggy condition of the lungs than hydrothorax. The occurrence of diarrhea, cholera morbus, or epistaxis often indicates the existence of organic disease. "Vascular disease, fibrosis, and the inflammations that are sure to follow in their wake have much to do with, if they are not the causes of, both gout and Bright's disease."

One cannot rise from a study of Dr. Meigs's book without feeling grateful for a much increased knowledge of the wide-spread character of chronic disease, as well as for judicious advice as to its management. His masterly study of the pathological histology of disease has brought to light new facts, but we cannot feel that the inferences which he draws from them are always sound; but a bold and independent thinker expects to have the majority against him, and it may be that in the future pathologists will be more nearly in accord with his views than they now are.

Outlines of Anatomy. A Guide to the Methodical Study of the Human Body in the Dissecting-Room. By Edmund W. Holmes, A.B., M.D., Demonstrator of Anatomy, University of Pennsylvania; Surgeon to the Methodist Episcopal Hospital, etc. Philadelphia: Avil Printing Company, 1897.

It is universally admitted that anatomy is the most important branch of the medical curriculum. A comprehensive understanding of all the other subjects in their bearing to practical medicine must rest on a knowledge of the structure of the human body. The efforts of the physician without this knowledge might be compared to a mariner endeavoring to cross the ocean without a compass. Anatomy is, at the same time, the most difficult branch of medicine for the student to master. Granted, therefore, that the subject must be acquired, how may it be best accomplished? Systematic study is the first requisite. This has been the fundamental thought in the preparation of this guide. Each day's work is laid out for the student, and the entire body is examined in an orderly manner. The book is not a treatise on anatomy: it is "supplemental to, but does not in any way take the place of, the larger" works.

Dr. Holmes's long experience as a teacher of anatomy has enabled him to appreciate the difficulties encountered by the student, and has eminently qualified him for the preparation of the "Outlines of Anatomy," which we think has well achieved the objects aimed at by the author.

A Manual of the Practice of Medicine, prepared especially for Students. By A. A. Stevens, A.M., M.D. Fourth edition. Philadelphia: W. B. Saunders, 1896.

This manual has evidenced sufficient merit to demand a fourth edition. It has been made to represent the most recent advances in medicine, which have been sufficiently tried to entitle them to a place in a work intended for students. The author has made a very modest claim in addressing only students, unless he refers to the graduate who keeps pace with medical progress as a student. The reviewer has always found a considerable satisfaction in running over the essentials of some disease he desired to refer to in this work. The recent progress in the diseases of the blood has necessitated the addition of much new matter. The same applies to a study of the gastric contents.

It is a safe, conservative, and reliable work.

Surgical Hints for the Surgeon and General Practitioner. By Howard Lilienthal, M.D. New York: International Journal of Surgery Company, 1897.

In a conversational style the author describes many lessons learned at the bedside and in the operating-room. They are such points as every one would learn with sufficient experience, but the beginner, especially, may acquire much of value from this little book in a less costly and embarrassing manner than by experience.

A Manual of Physiology, with Practical Exercises. By G. N. Stewart, M.A., D.Sc., M.D. (Edin.), D.P.H. (Camb.), Professor of Physiology in the Western Reserve University, Cleveland, etc. Philadelphia: W. B. Saunders, 1897.

Just as anatomy can be learned best in the dissecting-room, so the knowledge of physiology acquired in the laboratory is very much better understood than that which has simply been committed to memory. The idea, therefore, of combining practical exercises with the formal presentation of the different subjects, as Dr. Stewart has done, is a very happy one. The course is arranged, naturally, to be carried out under skilled instructors in the laboratory; but a very large amount of the work may be done in the home of the student, and all who possibly can should avail themselves of the information to be gained in this way either in the laboratory or in the home.

The entire subject is presented in a plain and attractive style, which is particularly suited to the student's needs, for, while it is suffi-

ciently elementary, it is made so interesting as to hold the attention. Such a work could not have been produced except by some one who has had a large experience as a teacher. The book contains numerous illustrations, five of which are in colors.

COLUMBIA CALENDAR FOR 1898.

For the thirteenth year the Columbia Pad Calendar makes its appearance for 1898. It contains a convenient arrangement of dates that will prove useful to busy men, and as plenty of space is reserved for memoranda, the pad may be used as a diary and as a reminder for business appointments and obligations.

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MEDICAL MAGAZINE.

JANUARY, 1898.

CLINICAL REMARKS ON A PECULIAR CASE OF SEPTICEMIA RESEMBLING FARCY.[1]

By J. M. Da Costa, M.D., LL.D.,

PHILADELPHIA.

Case.—Amos H. W., colored, 34 years of age, a hostler, born in Philadelphia, was admitted January 4, 1897, into the Men's Medical Ward of the Pennsylvania Hospital. His personal and family history is good. Father is still living and in excellent health; mother died of pneumonia in advanced years. With the exception of an attack of chicken-pox at seven years of age, the patient declares that he has always been well; he states that he is not intemperate in the use of alcohol; he denies venereal infection. While employed among horses in the stables, two weeks before his admission into the ward, he began to have pain in his left thigh. He then noticed an eruption of small papules which subsequently became pustular, and developed into small abscesses, especially on the left thigh anteriorly, and on the left leg below the knee. Subsequently similar lesions appeared on the right forearm. Some of these speedily dried up and healed, while others became ulcers. There was also general malaise, and muscular pains existed to such a degree that he had been obliged to stop working a few days previous to his admission. He stated positively that he had had no chill and no fever.

When he presented himself, he complained of general muscular soreness and of prostration. The lymphatics along the inner aspect of the left leg from the ankle to the groin were swollen and tender to the touch, as were those of the arms, neck, and trunk. The lymphatics

[1] From a clinical lecture delivered at the Pennsylvania Hospital.

felt like whip-cords under the skin; the glands of the groin were somewhat enlarged and also tender. The bowels were constipated, the appetite was good, no nausea or vomiting was present; the tongue was clean. The patient appeared to be well-nourished; and the notes state that the "pulse is regular, of good volume, and compressible. The heart-sounds are normal, the second sound is slightly accentuated. The lungs are healthy and their expansion is good. The liver dulness extends from the sixth rib to the costal margin; excessive tenderness exists in the hepatic region. The abdomen is full, but not tympanitic; considerable general tenderness, both superficial and deep, is found. The whole muscular system is very tender, and there is great tenderness in the lines of the lymphatic vessels, beginning at the inner malleoli of both ankles and extending to the groins, likewise the inner side of each arm from the wrist to the shoulder, along the outer side of each trapezius muscle, in the neck, and along the inner aspect of each lower jaw. The chains of lymphatic glands are swollen, no redness can be seen on account of the brown color of the skin, but they are very tender. There is general muscular pain as well as soreness of the touch."

Gentlemen,—You have heard the account of the patient as to the course of the disease: that two weeks ago he first noticed a small pimple on the inner aspect of the left thigh; this papule became tender and was surrounded by an area of inflammation; suppuration followed, and an ulcer was formed which slowly healed. The statement of the patient is confirmed by the fact that the remains of the lesion in this place may still be seen. There are now other papules and pustules visible in the neighborhood of the original lesion. His statement is that these papules were first hard and afterwards they became pustular.

There was so much muscular soreness that at first the patient thought he had rheumatism. Accordingly he presented himself at the Out-Patient Department, and the physicians there referred him for treatment to the ward. The report which the Out-Patient Department gave of the case was that "there are enlarged lymphatic glands all over the body with enlargement of the main lymphatic vessels in both arms and legs, associated with tenderness and pain upon pressure." In other words, there was general lymphangeitis. Now, was there redness of the overlying skin? This point unfortunately we could not tell, for very obvious reasons. The main points are the swelling and tenderness of the lymphatic vessels, the question of redness remains necessarily in abeyance. There are still some enlarged lymphatic glands in the loins and the axillæ; the post-cervical glands are also enlarged and very tender.

As regards his general condition, I want to make this point clear, that you now see all there was to be seen upon his admission. His temperature was nearly normal (99⅕° F.), respiration 20, pulse 74. His chest was examined and nothing abnormal detected either in the heart or lungs. His urine was free from albumin and sugar; there was a sediment of urates and epithelium, and a rather low specific gravity (1012). I will only supplement this account by telling you that the temperature since admission has remained about the same, except that on one occasion it was subnormal (97°).

The patient as he lies before you this morning still has several pustules upon the left thigh and also one on the leg below the knee, and there are several around the ankle. There is thickening around the lymphatic vessels which feel like cords under the skin. There is a very distinct pustule on the right leg, in the popliteal region and a little to the inner side of the knee.

He has some sore throat, the glands under the jaw are moderately swollen and tender. The pharynx is hyperemic and slight inflammation of the fauces exists; the nares are not affected.

Now, gentlemen, what have we here? It is a case of general lymphatic inflammation. Of this there can be no doubt. There is tenderness, swelling, and hardness all over the body of these lymph-trunks, and some enlargement of the glands in the axilla, in the groin, and under the maxilla. What is the disease? Lymphangeitis. Yet, is that the whole of the case? What is the infection which has given rise to this obvious condition? There is nothing to lead us to believe that it is of syphilitic origin. But there is another explanation. This man is a hostler, and works constantly among horses. It is quite possible that some infection has taken place on account of his occupation. It is quite possible that this pustule in the left thigh was the original source of the infection, which subsequently spread to the lymphatic system generally. But he informs us that he had the signs of general muscular soreness and prostration before the development of the pustule. I do not know whether this be true or not, but there is in my mind a very close connection between the appearance of these pustules and the general symptoms in the case. In other words, I believe that this is a case of septic infection. While waiting for the report from the bacteriologist as to the nature of the infection we, provisionally, had accepted this as a case of inflammation in the lymphatic vessels and glands, with pustular and ulcerative lesions of the skin, the result of some form of septic infection.

The treatment of this case has been local as well as general. The lesions upon the left leg were dressed with a 1–2000 bichloride solution, and subsequently with compresses moistened with distillate of

witch-hazel. He was purged with salines, and tincture of the chloride of iron was given in twenty-drop doses every three hours. Quinine was also ordered, sixteen grains daily.

Now what does the muscular soreness mean? It may be only a part of the general condition, as in some patients suffering with fever we find muscular pain and soreness not of just rheumatic origin. It is a question in my mind, after all, whether this pain is really a muscular soreness or an affection of the deep lymphatic vessels which are everywhere distributed. But whatever the explanation it plays a very prominent part.

Observations by lecturer one week later.

The case when first seen impressed me as one of farcy for these reasons: First, the man's occupation; second, the peculiar eruption; and, third, the muscular pains similar to those of rheumatism, but clearly not rheumatic. The eruption consisted of little nodules bearing a strong likeness to a farcy eruption.

From all these facts there would have been very little doubt that it might have been considered a case of farcy in the human subject, had not the bacteriological examinations which we have had made shown the absence of the characteristic bacillus malleus, and had not the inoculation experiments upon rabbits failed to give the special glandular reaction. The report from the Laboratory of the University of Pennsylvania fully confirms the report of Dr. Gillespie, of the Philadelphia Bacteriological Laboratory, that "no glanders bacilli were present." Experiments made upon rabbits, under the direction of Dr. Abbott, of the Bacteriological Laboratory of the University of Pennsylvania, gave a negative result. There was no swelling of the testicles after the injections, which is the characteristic reaction from the inoculation with farcy or glanders bacilli in the rabbit.

It is also fair to state that a distinguished dermatologist of this city saw the case and thought that it was probably not farcy, although very similar.

If, then, we admit that it was not strictly a case of farcy, it is evident how much it is like it. The suggestion may be made that many cases of so-called farcy, which like this have recovered, may be due to some other form of poison than specific farcy; something derived from horses, which is not genuine equinia, but much resembling it. Indeed, it would seem more than probable that there must be some forms of purulent infection derived from horses, which do not give specific farcy lesions. We know that mild cases recover as a general rule; it is stated that one-fourth of the cases of chronic farcy recover. Then the question arises, is it not likely that these mild cases were, after all, not true cases of the disease, although similar to it, and really

belonging to a distinct form of infection of which this case is an illustration?

The following characteristics of farcy or glanders are usually relied upon for diagnosis:

The bacillus mallei is readily stained by aniline dyes in alkaline solution. It is about the size of the tubercle bacillus, which it resembles. It is readily destroyed by solution of corrosive sublimate in strength of 1–1000. It invades by preference the lymphatic vessels. The infection is not by inhalation, but by direct contact through minute abrasions. Occurring in man, it is generally acquired from a horse, although it may be transmitted from man to man. The incubation stage is from three to five days. In acute farcy the lesions are multiple, sanguinolent abscesses and a pustular eruption upon the skin, most marked in the second or third week, and the duration of the case usually extends to six or more weeks.

An important fact to be noticed in this connection is this: that glanders bacilli are seldom found in farcy buds, and other organisms, such as streptococci and staphylococci, are also absent as the rule. But cultivation and inoculation may be able to demonstrate the presence of the bacillus mallei by the characteristic glandular reaction (swelling of the testicles) in guinea-pigs and rabbits. In true equinia it is almost invariably found that the lungs become involved. In the lower animals dying with this disease the lungs are in a condition of chronic interstitial pneumonia; on section, very many pearly gray nodules are to be seen surrounded by capsules, some being as large as walnuts, but the pea-sized being most abundant.

In the patient under consideration, it is to be noted that there was entire absence of any pulmonary lesion. It is also to be noted as negative facts that there were no muscular abscesses and that polyuria did not occur.

As regards the question of treatment, it is claimed that the binarseniate of strychnine has given good results. The treatment pursued in this case was mainly by corrosive sublimate and general tonics and quinine and iron.

[The patient steadily improved under this treatment, with nourishing diet and rest in bed. A few new pustules appeared January 20 on the leg and thigh, but the lesions were not so painful as the former ones and soon dried up. On the 30th, the patient was allowed to be up all day. He was discharged to resume work February 9, but returned a week later as the pustules were not entirely healed, and there was still some lymphatic tenderness. He was finally discharged as cured March 18, 1897.—Rep.]

RETROESOPHAGEAL ABSCESS.[1]

By J. P. Crozer Griffith, M.D.,

PHILADELPHIA,

Clinical Professor of Diseases of Children, University of Pennsylvania.

William B., aged 21 months, was brought to the Children's Clinic of the University of Pennsylvania November 8, 1895, with the following history: He had been healthy previously except for some degree of indigestion. He was fed on different commercial infants' foods at first, and finally on cow's milk, which agreed with him best of all. He cut his first teeth at six months and walked at thirteen months. In the winter of 1894–95 he had a mild attack of pneumonia, but recovered completely. About four months before his first visit to the hospital he began to have a troublesome cough, for which he received treatment without any benefit; even being kept in one room for three weeks. For the last four weeks the cough had had a very metallic, croup-like character, and there had been rather noisy breathing at times, this being brought on by the least exertion. The child had frequent cough during the night, with croup-like attacks and difficult respiration, which had been the cause of alarm, and had necessitated sending for a physician in haste on several occasions.

The examination made at his first visit to the hospital resulted as follows: The child was rather pale but fairly well nourished; respiration decidedly labored but not much accelerated; expiration longer than inspiration. Cough was of a very striking character, exactly like that of stenosis of the trachea from tumor. The head was slightly rachitic in shape and the fontanelle still open. The chest, however, was not noticeably rachitic, but the transverse furrow below the nipples was very marked on inspiration, and the sterno-cleido-mastoids and the alæ nasi played with each breath. The lower part of the chest was sunken in very decidedly, as though by the pulling of the diaphragm. With each inspiration there was a noisy rattling sound of mucus in the bronchial tubes. Examination of the chest showed no percussion dulness anywhere; no unusual shape other than stated; no alteration of respiratory murmur except some prolongation of expiration, and numerous coarse mucous râles everywhere. Examination of the throat, made by Dr. Charles P. Grayson, lecturer on Laryngology in the University of Pennsylvania, showed nothing abnormal in the

[1] Read before the American Pediatric Society, 1897.

pharynx, as far down as the epiglottis. The vocal cords could not be seen readily.

The day following the examination the child was no better, and by November 12 he was rather worse, with the cough very frequent and still more suggestive of stenosis. I advised, therefore, that he be taken into the Children's Hospital, as it seemed dangerous for him to be without medical observation at night.

The diagnosis of the case so far was obscure. The child had been shown to the students in the ward classes, and the possible nature of the affection discussed, yet without arriving at any certain conclusion. Bronchitis of a suffocative grade from profuse secretion, croup, stenosis from mediastinal tumor or from tuberculous glands, etc., were all passed in review. The very large number of coarse mucous râles made the first probable, especially if with this condition there was associated a spasm of the larynx occurring at times. Against the existence of spasm was the fact that the difficulty in breathing was nearly constant, and had not been relieved by any treatment which would naturally produce relaxation.

It seemed a possible thing that the increased dyspnea at night might be due to a combination of asthma with bronchitis, although the short duration of the condition made the existence of asthma unlikely. More plausible seemed the diagnosis of a stenosis of the trachea or bronchi. The very characteristic cough of stenosis, the absence of hoarseness, and the presence of such constant and well-marked dyspnea made stenosis seem very probable, although careful examination of the thorax showed no evidence of a tumor. The existence of enlarged tubercular bronchial glands was entertained, but seemed, on the whole, unlikely.

The child was at once, November 12, entered at the Children's Hospital, and on the 13th I received an invitation to attend a tracheotomy upon him, which Dr. John Ashhurst, the attending surgeon on duty, was to perform that morning. The history of the case in the interim had been as follows: When brought to the hospital the resident physician had obtained from the mother an account of the swallowing of a foreign body by the child. It seemed to me at the time very possible that the mother's statement might have been the result of suggestive questions, for nothing of the sort had been told us before. However this may be, the mother now seemed most positive that some four weeks previously the child had choked over a piece of celery, and had grown blue in the face; that she had made an ineffectual effort to get this out of its mouth, and that at this time the difficult breathing and the strident cough had commenced; although she admitted that considerable cough had been present before. As the patient's condi-

tion was rapidly growing worse operation seemed the only justifiable course. Tracheotomy was performed on November 13. The child ceased to breathe before the trachea was opened, and was revived only with the greatest difficulty. The opening of the trachea gave no relief to the dyspnea, and before the operation was quite completed respiration again ceased, and was re-established only with the greatest effort. Cyanosis and dyspnea persisted. No foreign body could be detected by the forceps passed downward through the wound. The child was placed in a croup-tent and the air kept moist. The symptoms failed to improve; by evening the temperature rose to 103° F. On November 14 the condition was no better and fever continued. A stringy shred was brought up through the tracheal tube, and this was supposed to be possibly a piece of celery, but it was unfortunately not preserved for examination. The chest showed signs of broncho-pneumonia. By November 17 the dyspnea had grown constantly worse, the child weaker, the temperature had ranged about 104°, and respiration between 50 and 60. Death took place on this date.

A post-mortem examination was made under restrictions, imposed by the family, which interfered with the obtaining of certain details. The result was a surprise to every one. The heart was normal. The lungs exhibited a diffuse broncho-pneumonia. In the right bronchus, one-half inch below the bifurcation of the trachea, were found three small bodies about one-third of an inch in diameter. These were adherent to each other by mucus, were yellowish in color and soft, and almost occluded the lumen of the tube. They were at first supposed to be the foreign bodies looked for, but microscopical examination showed them to consist only of fatty crystals and granular detritus. While attempting to dissect out the right bronchus, the knife, passing posteriorly, punctured an abscess cavity and several ounces of pus escaped. On enlarging the puncture the pus was seen to come from an abscess situated behind the trachea and bronchi. The abscess reached upward over the first thoracic vertebra, and downward to about two inches below the bifurcation of the trachea. Its posterior wall was formed by the vertebræ, and the anterior surface of the body of the first thoracic vertebra was eroded sufficiently to allow the tip of the little finger to enter the hole formed. The anterior aspect of the body of the second thoracic vertebra was roughened by the carious process. The dissection and the collapse of the abscess interfered with the exact determination of the degree of pressure which had been exercised during life. It seemed that the trachea had lain immediately in front of the sac and somewhat to the right, the left bronchus in front of it, and the right bronchus to the right. The esophagus lay to the left of the

abscess and was closely adherent to its wall. Examination of the child's back showed no abnormal curvature externally to correspond with the seat of caries.

In response to questions after the autopsy the parents stated that for about two months previous to the onset of the cough and dyspnea the child had held his back rather stiffly and had walked rather awkwardly, supporting himself with his hands. They had not, however, deemed it a matter of any importance,—evidently it was not a striking symptom. Indeed, like the statement regarding the choking over the celery, the element of suggestion may have had much to do with the answers given. The post-mortem examination of course made the diagnosis plain, and fully accounted for all the symptoms. In retrospect it is easy to say that the existence of caries of the upper spine should have been thought of. The presence of stiffness of the neck or of an awkwardness of carriage or of deformity of the spine would have been suggestive had they existed; but without either symptoms or history there seem to have been no data on which a diagnosis could have been based. If dysphagia had been present as well as dyspnea, the presence of a foreign body could have been excluded with reasonable certainty, and the existence of a tumor or other mass pressing on both trachea and esophagus would have been almost sure.

There seems to be no apparent reason why retroesophageal abscess, causing stenosis of the trachea and esophagus, should not be of comparatively frequent occurrence. As a matter of fact it seems to be rare. Text-books of surgery and of medicine for the most part make little or no reference to the possibility of its presence. I have looked through a considerable number of surgical volumes with but little positive result. The works of Gross, Ashhurst, Erichson, Bryant, Pitha-Billroth, Holmes, Dennis, D'Arcy Power, and Hamilton, and the "American Text-Book of Surgery" make no reference to it. It is also omitted in the volumes of Walsh, Fox, Rotch, J. L. Smith, Ingals, Osler, Tyson, Eustace Smith, the "Cyclopedia of the Diseases of Children," the "American Text-Book of the Diseases of Children," and the "American Text-Book of Medicine." Riegel, in "Ziemssen's Hand-Book," merely states that there are cases known in which caries of the cervical spine has produced stenosis of the trachea. I have looked through all the volumes of the *Centralblatt für klinische Chirurgie* without finding a reference to a single case. Grossmann[1] in a monograph on tracheal stenosis refers in a very brief note to the possibility of the condition arising, and König[2] speaks of the possibility in rare cases. All this is rather unsatisfactory, and would leave the impression that the possibility of the production of tracheal stenosis in this way is theoretical rather than real.

On the other hand, carious abscess producing tracheal stenosis is referred to by a number of text-books, although it is not always clearly defined whether it is exceptional or not. Gerhardt and Henoch in their respective text-books on diseases of children touch most briefly upon the subject; Ashby and Wright give it only a short notice; Agnew discusses it briefly but succinctly; Holt and Baginski each devote to it quite considerable attention, the latter intimating that it is not as rare as is supposed; Barthez and Sanné describe it as one of the forms of retropharyngeal abscess, and give some of the diagnostic symptoms.

One is therefore left somewhat uncertain regarding the actual frequency of the condition. I have made no attempt at an exhaustive search of medical literature, but the following comprise all the cases I have discovered published during the last fifteen years.

Chapin.[3] Girl of about 3 years of age. There had been slight difficulty in breathing, for some months cough, but never dysphagia or affection of the voice. The temperature was always normal. A sudden suffocative attack terminated life. After death a large retroesophageal abscess was found in front of the deeply carious first and second dorsal vertebræ.

Walsham.[4] Man of 57 years. In this case there was great dysphagia, some swelling of the neck, no sign of caries. But it is to be noted that, although primarily retroesophageal, the abscess had extended upward and at the time of incision was retropharyngeal, with the characteristic symptoms of this disease.

Ripley.[5] A 3-year-old boy had noisy, difficult inspiration, no dysphagia, slight hoarseness, dry wheezing cough, swelling about the neck, and some prominence of the upper thoracic spinous processes. Death occurred a couple of days after tracheotomy. The autopsy revealed a large abscess in front of the fourth to the seventh cervical and first dorsal vertebræ, which were more or less carious. The writer states that Gibney has seen two cases of postesophageal abscess from caries, and James Knight not more than half a dozen in their very wide experience of spinal caries.

Clutton[6] describes a specimen from a man of 24 years, in whom there had occurred sudden pain and swelling in the neck, with inability to swallow, caused by rupture of an abscess into the esophagus. Recovery followed, but the patient died in a relapse. The abscess appeared to have arisen in the areolar tissue of the neck, since the vertebræ were not involved. It extended five inches vertically, beginning three-eighths of an inch below the cricoid cartilage. It communicated with the esophagus, trachea, and the right lung.

Turner.[7] An infant with cough, attacks of dyspnea with cyanosis,

normal voice, no dysphagia. Death occurred after tracheotomy. The abscess, which extended from the level of the cricoid cartilage to within one-quarter inch of the bifurcation of the trachea, was unattended by caries of the vertebræ. It had caused slight flattening of the trachea.

Richards.[8] Child of 3 years with curvature of the upper dorsal spine and with the head held stiffly. Cough brassy and respiration stridulous and somewhat dyspneic. No dysphagia or hoarseness. Death from pneumonia. The autopsy showed a retroesophageal abscess, larger than a horse-chestnut, fully an inch below the larynx, compressing the trachea and esophagus. The seventh cervical and upper three dorsal vertebræ were carious.

Jarisch.[9] Boy of 4 years, who had had some dyspnea for several months, grew worse, and when seen was suffering with cyanosis, croupy cough, and noisy, piping, stenotic breathing. The cry was normal, but when the child was not excited the voice was aphonic. There was a curvature in the region of the second dorsal vertebra, but no swelling of the neck. Death occurred in one of a series of suffocative attacks. The autopsy showed a large abscess reaching from the sixth cervical to the fifth dorsal vertebra, and pushing the trachea to the right and the esophagus to the left. On the posterior wall could be felt the carious bodies of the second and third dorsal vertebræ.

Bremner.[10] A child of 8 months, who had suffered from slight cough and slight dyspnea without dysphagia; and who died apparently of general bronchitis and exhaustion. A retroesophageal abscess was found extending from high up in the postpharyngeal wall downward four and a half inches as far as the fourth rib. The condition of the vertebræ is not mentioned.

Noble Smith.[11] A child of 6 years with urgent dyspnea supposed to be croup. The autopsy showed a large abscess behind the esophagus and trachea. The fourth dorsal vertebra was quite destroyed and those above it partially so.

Holt.[12] Girl of 5 years with curvature of the upper dorsal spine, had very little cough and no dysphagia, but attacks of severe inspiratory dyspnea, in one of which she died after tracheotomy. The autopsy showed an abscess the size of an egg in front of the upper three carious dorsal vertebræ. The right pneumogastric nerve was compressed.

Ashby and Wright[13] state that they have met with two cases, one due to caries, the other to tuberculous glands.

Baginski[14] says he has seen five cases in recent years.

Agnew[15] says he has seen cases.

There are doubtless other cases, but the smallness of the number I have collected certainly shows that the disease is rare, and warrants the publication of the case I have detailed.

It is not necessary to dwell at any length upon the symptoms. In fact, there seem to be none which are absolutely characteristic, and the diagnosis of the disease is often difficult and many times impossible. If we analyze the details of the cases I have mentioned, as far as they are given by the writers, including my own case, we find dyspnea present to some extent in nearly all, and in most of them constituting a prominent and very urgent symptom. This would seem to be the result of reflex irritation as much as, or more than, of direct stenosis. Cough also was nearly always present, sometimes only slight, sometimes very brassy and suggesting laryngeal stenosis, or, as in my case, pressure lower upon the respiratory tract. The voice was seldom affected in the cases I have collected,—viz., in only two cases, and in these but slightly. This is in sharp distinction to the voice of retropharyngeal abscess, which is so often thick and nasal. So, too, there was a peculiar absence of dysphagia, in spite of the fact that the position of the abscesses must necessarily have produced pressure upon the esophagus. This is doubtless due to the fact that the tube yields easily to this pressure and changes its position. In retropharyngeal abscess, on the other hand, dysphagia is a very prominent symptom. In only two of the cases of retroesophageal abscess I have collected was dysphagia present, and in one of these the abscess had really extended into the pharynx as well, while in the other the difficulty in swallowing did not develop until the abscess ruptured into the esophagus, and then was but a temporary symptom. Swelling in the neck would be a valuable symptom, but I find it mentioned in only three cases. Curvature of the upper dorsal or lower cervical spine would render one suspicious of the presence of an abscess; but that, of course, is a symptom which may or may not occur, depending upon the degree of caries, if this exists. As to the presence of caries as a cause, I find it mentioned in seven cases, and proved by autopsy to have been absent in two, while in the case of Walsham, which recovered, there was no sign of it, and in Bremner's case nothing is said on the subject. Baginski states that in most of the five cases which he speaks of the cause was diphtheritic pharyngitis. We may infer that the cases of Gibney and of Knight, to which Ripley refers, were the result of caries. It is interesting to note that the disease seems to be pre-eminently one of infancy and early childhood. There are only two of those enumerated here which occurred in adults.

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A CONTRIBUTION TO ARHYTHMIA OF THE PULSE AND ITS SIGNIFICANCE.

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There is, perhaps, scarcely any other symptom which is more capable of alarming the patient and of annoying the physician, or concerning the physiology of which less is definitely known, than that of arhythmia of the pulse. Broadly it may be said that arhythmia of the pulse is a deviation from the normal, which may find its expression in any one of the following forms:

(1) The *pulsus intermittens* signifies the dropping of a pulse-beat: several normal beats succeed each other, and then the pulse is absent during the time occupied by one or two beats. The intermissions may occur at regular or irregular intervals and may be either true or false, —*i.e.*, there may be a complete absence of the ventricular systole constituting true intermission (deficiency), or the contraction may be so weak as to fail to drive the blood-current to the radials, which is known as false intermission.

(2) By the *pulsus alternans* we understand that there occurs an alternating weak and strong pulsation.

(3) In the *pulsus bigeminus* a full systole is after a short diastole, followed by a short and incomplete systole, and this in turn by a long diastole. The coupled heart-beat is evidenced at the wrist as either

[1] Read before the Medical Society of the District of Columbia, October 13, 1897.

the bigeminal pulse or as the false intermittent. The tri- and quadrigeminal pulses are similar to the above, except that the fourth or fifth beat is omitted instead of the third.

(4) The wholly irregular pulse as to time and force is known as *delirium cordis.*

(5) By the *pulsus paradoxus* is meant a weakening of the pulse during inspiration.

While embryocardia and gallop rhythm are forms of cardiac arhythmia, they have not been described, since they have no distinctive expression at the wrist.

The *intermittent,* the *alternant,* the *bigeminal,* and the *wholly irregular* are the four primary forms of arhythmic pulse, but of these there may be many combinations.

The same patient may present, at different times, several varieties of arhythmia, or varied forms may follow each other in quick succession. When even though there is irregularity of the pulse, a distinct method in the irregularity is observed; the condition is known as allorhythmia ("arhythmie cadencée" of the French), of which the bigeminal pulse is an example.

The vagus is the cardio-inhibitory nerve, stimulation of which, either at its centre, in the medulla, or along its course, first causes slowing of the heart or momentary arrest; second, lowering of the intracardiac pressure (Weber brothers). The real inhibitory fibres are, however, derived from the spinal accessory.

The sympathetic is the accelerator of the heart stimulation, causing increase in the frequency of the pulse and in the force of the ventricular contractions. The augmentor centre is thought to be in the bulb.[1]

The vagus and the sympathetic, together with the ganglia of the heart wall, constitute then the nerve-supply of that organ.

It was long since proven that the frog's heart could be kept beating rhythmically for many hours after its removal from the body, but in 1895, Langendorff was able, by circulating warmed, oxygenated, defibrinated blood through the coronaries, to maintain the hearts of rabbits, cats, and dogs in activity after their total extirpation from the body.[2]

It is, then, quite evident that the rhythmic heart-beat is entirely independent of the central nervous system. As to whether the intracardiac power is derived from the ganglia in its walls or whether it is an inherent quality of the muscle-fibres, there is still some doubt, though the majority of authorities of our time favor the theory of muscular origin.

Wooldridge, in 1883, demonstrated that there is an idio-ventricu-

lar rhythm,—*i.e.*, that the ventricles will contract rhythmically, though cut off physiologically from the auricles. This rhythm, however, is slower than that of the auricles.

Professors Roy and Adami[3] showed by experiments upon mammalian animals that stimulation of the vagus weakens the force of the auricular contractions, and, probably, to a corresponding degree, the strength of the rhythmic excitation which reaches the ventricles from above, and at the same time it diminishes the excitability of the ventricles; but in spite of the latter the ventricles tend to take up a rhythm of their own, which is slower than the normal beat. Each rhythm alone is regular, but when they both affect the ventricle at the same time, there is interference with the production of a rhythmic irregularity.

Simple intermittency, however, may be due to weakened auricular impulses, not being followed in all cases by a ventricular contraction; in this way may be produced a bi-, tri-, or quadrigeminal pulse or other varieties of intermittency.

So much for the theory of the production of arhythmia through the medium of the vagus nerve alone, but it does not seem improbable, as has been suggested by Huchard,[4] in reference to the arhythmia so often accompanying myocardial disease, that, since the heart muscle is connected so closely, if the rhythmic contractions are due to the muscle lesions of the muscle, by destroying their continuity, would produce arhythmia; and to account for the fact that the extent of the lesion sometimes does not seem to bear any relation to the amount of arhythmia, he suggests that there may be portions of the heart, as of the brain, which are more tolerant. According to Huchard,[5] from a physiological point of view, we may recognize three classes of arhythmia, those of myocardial, nervous, and mechanical origin, while from a pathological there are six.

(1) Neurotic and psychic	Hysteria, neurasthenia, epilepsy. Exophthalmic goitre. Emotions. Paroxysmal arhythmia.
(2) Nervous and cerebral	Meningitis,—simple and tuberculous. Apoplectic stroke. Hemorrhage,—cerebral or meningeal; cerebral tumors. Compression of the vagus by tumors.
(3) Reflex	Diseases of the intestine, uterus, stomach, etc. Arhythmia from cold.
(4) Toxic	Digitalis, tea, coffee, tobacco, abuse of alcohol, etc.

- (5) Critical arhythmias of acute diseases . . . . . — Convalescence of typhoid fever, at the moment of defervescence of pneumonia and other acute diseases.
- (6) Arhythmias of cardiopathies
  - (1) Valvular . — Insufficiency of the mitral chiefly. Stenosis of the mitral.
  - (2) Myocardial
    - (*a*) Acute myocarditis in typhoid, grippe, variola, etc., chronic myocarditis.
    - (*b*) Senile arhythmia,—degeneration and overcharge of fat of the heart.
    - (*c*) Arterial cardiopathies.
    - (*d*) Endocarditis, pericarditis, adhesions of the pericardium.
    - (*e*) Insufficiency and stenosis of the aortic valves of arterial origin.
    - (*f*) Sometimes angina with concomitant cardiosclerosis.

I shall not attempt to consider all the causes of arhythmia, but shall take up a few of the more important.

While arhythmia of the pulse may, in many cases, be purely neurotic in origin, it becomes of great importance to determine the true cause, because of its frequent association with most serious maladies.

Under the name of "L'Arhythmie angoissante paroxystique et essentielle," Huchard[6] has described a peculiar form of arhythmia occurring usually in comparatively young people, who, while in good health, are suddenly taken with a disorder of the heart-beat. The irregularity, which is quite marked, is nearly always accompanied by a sensation of distress without true anginoid pains. The attack may terminate in a prompt regulation of the pulse, which may remain so for weeks or months even, until the next crisis, which follows nearly always without apparent cause. These cases are observed among the nervous and neurasthenic without heart lesion, and should not be mistaken for true angina.

Sir Benjamin Ward Richardson was one of the first to pay special attention to the psychical influence upon the heart's rhythmic action. His experience has, however, been confirmed by that of many others. Shocks to the nervous system from grief, fear, rage, worry, etc., are not infrequently the causes of arhythmia, which usually takes the intermittent form.

The writer[7] speaks of having seen five cases of insanity, with attempted suicide, where an intermittent pulse was the first physical indication of derangement.

Arhythmias from shocks usually show a tendency to recover, but may remain permanently. Balfour[8] tells of a case where an intermit-

tency, which was brought on by a railroad accident, occurred at first at every second beat, but came down to one in twenty.

Only very seldom, according to Nothnagel,[9] do we see a case of meningitis which does not at some time during its course show an arhythmic heart's action. The pulse, which is slow at first, becomes irregular and frequent, but seems to follow no peculiar form of arhythmia. It is not unusual in this condition to note that very unstable state of the circulatory apparatus, whereby the pulse varies from minute to minute; the slow pulse of 60 may rise in a short time to an average of 110 to 130 per minute, and again subside. Baumgarten[10] is of the opinion that these rapid variations invariably point to central trouble, —compression, concussion, etc.,—but may also be noted *sub finen vitæ* as an expression of failure of the vagus centre.

Arhythmia is not unusual in concussion, and has been noted in syncope, but far less frequently does it occur in other intracranial diseases, such as cerebral hemorrhage, tumors, etc.

Arhythmia may result from pressure, irritation, or disease of the vagus trunk. Thus tumors of the neck or thorax, such as aneurism, hyperplasia of the thymus or thyroid, etc., may at times cause the phenomenon, or neoplasm of the nerve-trunk itself, as in Heine's[11] famous case of a man whose heart ceased to pulsate for the time usually occupied by five or six beats, during which time the patient suffered intense agony. A diagnosis of tumor of the vagus and hypertrophy of the cervical cord was made, and in due time confirmed at the autopsy.

Those most remarkable cases where the individual can, at will, produce an intermittency belong under this head, since it seems probable, as Nothnagel has suggested, that the arhythmia may be caused by pressure in some way being brought upon the vagus.

Fothergill[12] mentions an Indian officer who, having acquired the habit, finally lost his life practising it.

Arhythmia may be caused reflexly by irritation or pain in any part of the body, such as biliary or renal colic or angina pectoris. According to Osler,[13] the heart's action in severe spells of angina pectoris is probably always disturbed, the force of the impulse weakened, and the rhythm altered. Nothnagel[14] speaks of a condition of arhythmia brought on by cold bathing, which, however, must be very rare.

The toxic causes of arhythmia may be divided into (1) drugs and (2) infections and toxins. Under drugs may be considered tea, coffee, tobacco, and alcohol.

It is well known that the active principle of tea and coffee causes cardiac arhythmia, nor is it very unusual to find a similar result produced by excessive use of the above as beverages.

We are all more or less familiar with disturbances in the heart's action due to the use of tobacco.

Osler recognizes three groups of the so-called tobacco heart.

(1) The irritable heart of smokers, where palpitation, irregularity, and rapid action are the chief symptoms. This form is common, particularly in young boys.

(2) Heart pain. Sharp shooting pains about the heart, which may occur alone without disturbance of cardiac rhythm, and without the intensity and associated features of an attack of angina.

(3) Tobacco angina.

Disturbance of rhythm is the most constant effect of tobacco, and intermittency is more common than either slowing or hastening of the heart's action.[15]

The various other drugs which are capable of producing arhythmia—digitalis, strophanthus, chloral, aconite, veratrum, muscarine, etc. —will not be considered.

In that class of toxic arhythmias due to drugs the prognosis is generally favorable, the removal of the cause being usually sufficient to effect a cure.

While arhythmia of the pulse does not by any means always indicate disease of the heart, still its presence should, in every case, be the signal for a thorough examination.

It may be associated with a lesion of any of the valves when compensation is ruptured, but is so much more frequently found where the mitral is the seat of trouble that efforts have been made to explain its occurrence.

Irregularity presents itself with the first onset of symptoms in mitral insufficiency, and often remains after compensation has been established (Osler).

Broadbent[16] says that habitual irregularity of the pulse is so common in mitral insufficiency, and so rare in other valvular lesions, that it cannot be put down to any alteration in the cardiac walls or cavities, still less to the nerve influence. His explanation is that during inspiration pressure is greater on the auricle, hence less blood is allowed to return from the ventricle; while during expiration the heart is in a state of negative pressure and more blood is allowed to return, thus making the irregularity of the pulse.

Huchard[17] recognizes two classes of arhythmia in the mitral insufficiency, one appearing early, due, he believes, merely to mechanical causes, the other coming on later as the result of the failing myocardium, and hence of far graver import. In aortic diseases it is also unfavorable. He then sums up the value of arhythmia as a prognostic sign by saying, "In a word, when arhythmia occurs in a cardiopathy,

where it is not ordinarily one of the regular train of symptoms, it should be taken into serious consideration."

According to Whittaker,[18] irregular action and arhythmia are not necessarily bad signs in valvular lesions, but become bad when the rhythm may not be restored by rest in bed and heart stimulants. An early arhythmia or allorhythmia and Cheyne-Stokes respiration are *signa mali ominis.*

In acute myocarditis arhythmia is often one of the earliest symptoms, hence its occurrence during the course of diseases, such as typhoid fever, diphtheria, small-pox, and influenza, should at once arouse the gravest fears of a beginning myocardial change. In this class belong the second divisions of toxic arhythmias.

While arhythmia in the infectious diseases, as Wertheimer[19]—following the teachings of Hayem, Desnos, and Huchard—remarks, may be due to ataxia of the nervous system, it may, on the other hand, be the result of myocarditis, and in these cases is always a bad symptom.

Hayem[20] has attached great importance to the stage of typhoid fever, at which arhythmia makes its appearance. If during the second or beginning of the third week, the prognosis at once becomes grave, while if it appears only at the moment of defervescence, it means no danger, but rather convalescence.

Sansom[21] says that the pulse of typhoid fever exceptionally manifests a very slight amplitude and great irregularity. In these cases there can be no doubt that there is myocarditis. The prognosis, when this has been observed, is grave; sudden death may take place.

Diphtheria does not, as a rule, show arhythmia until the period of convalescence is established, and then almost always indicates a fatal termination.

Among the acute infectious diseases which may show during their course, or which may be immediately followed by cardiac disturbances, there is no one of greater interest, because of its prevalence, than epidemic influenza.

Of 100 cases of morbid conditions of the heart referable to grippe, Sansom[22] found 25 per cent. to be of the arhythmic character, and remarks, in conclusion, "We may say that a morbid change in the cardiac reflex may have its expression in irregularity. The immediate cause of the lesion may be hemorrhage or neuritis, caused by the toxins of the disease-producing microbes." Other writers, however, attribute the abnormal cardiac conditions to myocarditis. The truth probably lies between the two opinions.

Arhythmia of the pulse may be the first, and is often, for a long time, the only indication of chronic myocarditis. Huchard has called

attention to the fact that, in cardio-fibrosis, the arhythmia frequently takes the allorhythmic form, with which my own experience accords.

In fatty degeneration, according to Kisch,[23] as quoted by Whittaker, arhythmia exists in 8 per cent. of all cases, and, as evidence of serious degeneration of the muscular tissue, is a sign of great danger. Occurring in atheromatous disease of the blood-vessels, Sansom does not consider that arhythmia can be taken as practical criteria of any affection of the myocardium, but rather due to disturbance of the nervous mechanism of the heart. He believes the slow pulse to be of much more serious import than arhythmia or tachycardia, except in extreme cases. The above author, however, is not generally supported in this view.

The irregular heart's action seems more readily explained by probable degenerative changes due to associated lesions of the coronaries or their terminal branches.

Arhythmia is so common among those advanced in years, who otherwise are apparently in perfect health, that some special mention of this class seems necessary.

So frequently is this symptom observed that some authors are inclined to make light of it, and, in fact, it has been considered almost physiological.

Huchard[24] says that he has often observed the irregularity, but always found, at the autopsy, a lesion to account for it. In these cases it is frequently only necessary for the patient to have an acute attack of pneumonia or influenza for the disease of the heart, which has remained latent, so to speak, to manifest itself.

It may be said, then, that many of the arhythmias observed in the aged are the result of a slow myocardial degeneration, which may not progress rapidly enough to cause any serious inconvenience, but which, nevertheless, may become a serious complication in case of an acute intercurrent disease.

One form of arhythmia which has a definite value, as a means of diagnosis, is the "pulsus paradoxus," which Kussmaul considered pathognomonic of fibrinous mediastino-pericarditis, but which has also been observed in other conditions, especially large pericardial effusions.

When due to mediastino-pericarditis, the bands about the large vessels are tightened by the expansion of the surrounding strictures during inspiration, and the blood-current thus interrupted.

Since Kussmaul's explanation of the paradoxical pulse, it has been shown to be produced by anything which interferes with the escape of the blood from the heart entirely independent of pericarditis. The phenomenon has also been observed in sleeping children. It is, however, an important diagnostic sign.

Arhythmia may occur at any period of life from the hour of birth to old age. As to its significance in infancy there is a difference of opinion.

According to Balfour,[25] arhythmia occurring immediately after birth always indicates some weakness of the cardiac walls or irritability of the cardiac innervation, and, though not necessarily of much importance, is many times associated with serious lesions of the valves or heart muscle, which tend to shorten life.

Richardson[26] believed that arhythmia occurring in infancy was an important indication of serious nervous derangement. In young adults it had the same meaning, and told the story of commencing failure of power.

Whittaker,[27] on the other hand, is of the opinion that in young people it may have *no* special significance, but, in a general way, is of more importance than palpitation.

From the foregoing the conclusion may be drawn that an arhythmic pulse, perhaps in the majority of instances, may not be of serious import; it is, at the same time, so often the result of grave nervous or cardiac change that its recognition should certainly be the signal for a careful investigation as to its probable origin.

Finally we may say,—

(1) That the prognosis in arhythmia of purely neurotic origin is more favorable, so long as the patient is unaware of the disordered heart-beat, since anxiety and worry have a marked tendency to increase the trouble.

(2) That an arhythmia which is present only occasionally is of less importance that one which is persistent.

(3) That the disappearance of an arhythmia upon exertion is, of course, favorable, while one which becomes more marked is correspondingly unfavorable, as indicative of myocardial incompetency.

(4) That, generally speaking, an allorhythmia (rhythmic arhythmia) is of graver prognosis than an irregular arhythmia, since this form is so often associated with myocardial degeneration.

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CYSTS OF THE EPIDIDYMIS AND THEIR RELATION TO HYDROCELE.

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Cystomata of the epididymis are, perhaps, of much more frequent occurrence than the number of reported cases would lead one to suppose.

Prior to 1844 the term spermatocele was used to denote certain painful swellings of the testicle and epididymis.

The first important memoir on this subject was written by Gosselin in 1848. He made a distinction between large and small cysts of the epididymis, and their clinical significance was elucidated for the first time. Still later other cases were published by Sedillot in 1856, by Foucher, and in a thesis by Marcé the term cyst of the epididymis was used for the first time.

About this same date Follin, Verneuil, and Giraldés described the so-called Wolffian cysts, which had their origin in the granular *débris*, remaining after the disappearance of the Wolffian body.

Dolbeau, in 1856, considered these cysts to be the result of a partial dilatation of the seminal tubules and a subsequent obliteration of a part of the rete testes, thus producing a cyst by retention. The same theory was held by Cooper and Virchow in subsequent articles.

In 1862 Dolbeau reported his experiments, in the injection of the tubules of 100 testicles with mercury, and demonstrated the existence of many small ampullary dilatations, which in places were entirely isolated, and appeared as small spheroidal pockets or minute cysts.

Many theories have been suggested to explain the pathogenesis of these cysts.

In 1885 two important articles appeared dealing with this subject, —namely, Monod and Arthaud, on the pathology of certain testicular cysts of the old, and by Hochenegg, who based his conclusions on the examination of 332 testicles in Albert's clinic, and elucidated a number of hitherto very obscure points.

Roth, of Bâle, contributed his interesting researches upon the anatomy of the vasa efferentia and their diverticules.

In 1889, Poirier, of Paris, contributed a very important monograph to the Surgical Section of the International Medical Congress, held at Berlin, on this subject. He discussed three theories as to the causation of these pathological conditions,—

(1) Wolffian theory,—which claims that the cysts result from the granular *débris* remaining after the disappearance of the Wolffian body.

(2) Traumatic theory,—which considers the cysts to result consecutively from a rupture of the seminal tubules, with an extravasation of blood and contents of tubules and the subsequent inflammatory development of a cyst wall.

(3) Retention theory,—which considers them to result from senile degeneration in the testicle and epididymis, as studied by Monod and Arthaud.

These three theories are applicable to the three varieties of cysts which are found to exist in the epididymis. The last or retention theory seems applicable to a greater number of these pathological conditions than the other two. This theory is accorded, by some authors, the first rank as an etiological factor in the cause of these cysts, and recent anatomical discoveries have confirmed this opinion.

Cysts of the epididymis have been variously classified.

(1) Subserous cysts.

(2) Ectasic cysts.

(3) Cysts following hemorrhage beneath the tunica albuginea.

They have again been classified as follows:

(1) Those connected with the seminal tubules, or which have originated in the same, and are known as spermatoceles.

(2) Those which do not appear in any way to be connected with the seminal tubules, and at no time during their development have they had any connection with the same.

The first classification seems to us, inasmuch as it embodies the substance of the second, to be the correct one.

In order to better understand the etiology of these cysts, the following important anatomical points must be considered:

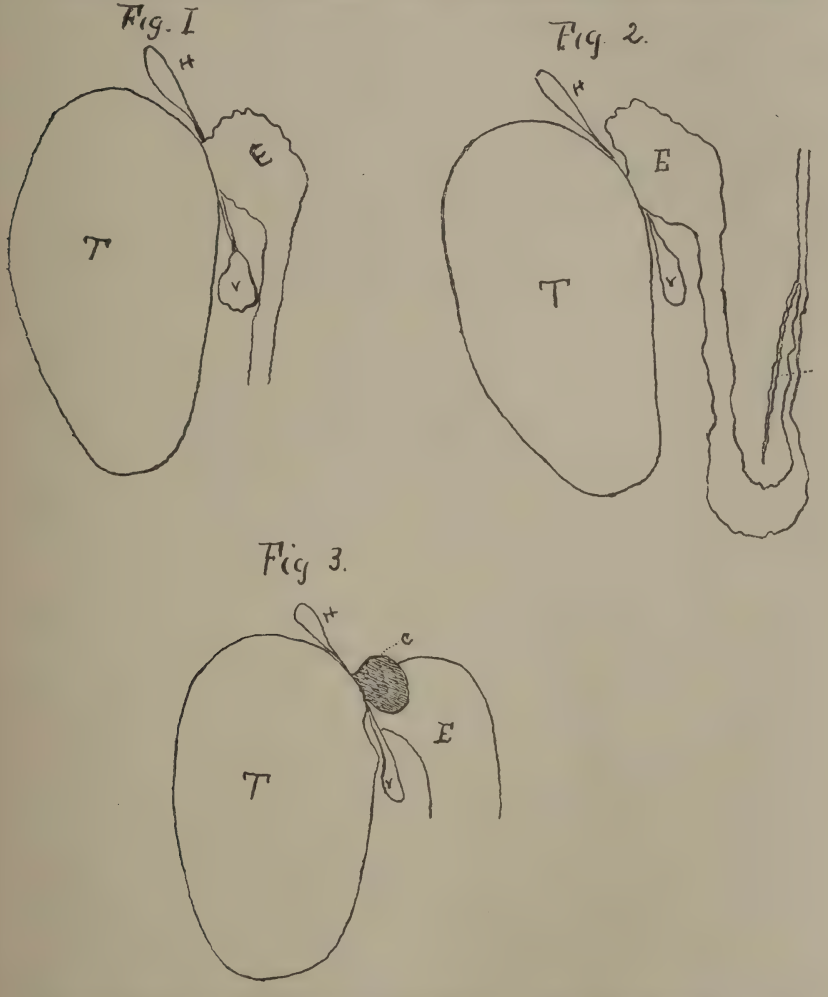
The testicular parenchyma forms the seminiferous tubules; these are convoluted and twisted upon themselves, and held together by a dense connective-tissue membrane, the tunica albuginea, and between which this tunic forms septa, the rete testes. From the rete testes there are about twenty vasa efferentia, each about twenty centimetres long, so convoluted and twisted as to form small spheroidal bodies. The diameter of these canals varies. The lumen of the tubules before entering the rete testes is two-tenths millimetre, while in the rete it is the size of the finest capillaries. From this point the vasa efferentia are six-tenths millimetre, and in the canals again four-tenths millimetre. It can now be readily understood that there are two positions which anatomically predispose to the formation of cysts, at least spermatoceles, because the dilated areas permit of congestion and stagnation of secretion. Haller and Lauth have shown that the presence of the vasa aberrantia or organ of Giraldés is more or less constant, and that the remains of the duct of Rossenmüller, the analogue of the paroovarian, is likewise frequently present.

Roth, in 1876, published a short note, in which he claims to have seen four cases within the short period of eight months, in which the remains of the duct of Rossenmüller at the rete testes could still be demonstrated.

Poirier injected forty-three testicles with mercury, and found it present twenty-five times. (Figs. 1 and 2.) When present, it is usually found adjoining the coni vasculosi. Its length varies from three to twenty micromillimetres, the average being about five or six micromillimetres. Its testicular extremity is fringed and of the same diameter as the vasa efferentia. Its inferior extremity varies as to its shape, sometimes long and narrow, sometimes spheroidal. In structure it resembles the vasa efferentia, and is lined with ciliated cylindrical epithelium. Sometimes it contains an ill-colored, yellowish fluid, and at other times serous fluid. Some authors claim to have demonstrated the presence of spermatic particles, while others, to the contrary, deny the presence of the same.

The origin of this body is still a matter of conjecture. It is considered by Kobelt and Roth to be the remains of a diverticulum of the Wolffian body. This theory would seem to be correct, because of the anatomical resemblance between it and the vasa efferentia.

At the junction of the head of the epididymis and the testicle may



T, testicle; H, hydatid of Morgagni; E, epididymis; v, vas of rete testes; c, cyst.

be seen one or two small pedunculated bodies. One of these is pretty constantly found just behind the coni vasculosi, and is believed to be the remains of the Müllerian duct. These are termed the hydatids of Morgagni. Several reported cases of cyst in this region have undoubtedly been located in this body, but this is not the usual state of

affairs. While many authors claim the blind extremity of the vas of the rete testes to be the seat of cystic formation, in the fifteen cases brought to our notice, the cysts did not correspond in position to that usually held by the vas, but more usually was in advance of the coni vasculosi and on the anterior surface of the epididymis. In all of our cases, but one, the previous history as to attacks of gonorrhea was elicited; but in none of the cases was there any history of an associate acute inflammatory condition of the epididymis. There is not always a communication between the vas of the rete and the tubules, as has been demonstrated on many occasions by the injection of mercury. According to Poirier, stenosis of the small tubules is comparatively frequent at this point, as has been clearly demonstrated by injections of Prussian blue. In several cases of cyst he was not able to fill the cyst with blue by injecting the tubules, yet over the surface of the cyst several small loops of tubules could be seen filled with the blue coloring matter.

It seems highly probable that the small cysts do not communicate with the seminal tubules, while the large cysts do, and the explanation of the same is easily understood by noting the following anatomical point: Between the superior portion of the testicle and the head of the epididymis a tough serous tunic is found, which entirely surrounds these cysts, except on the sides near the attachment of the tunica vaginalis. As the cyst increases in size its growth is prevented on all sides except the lateral aspects, as it grows it is then forced to roll up over this tough band, as is often the case in a femoral hernia, and spreads out in the midst of the seminal tubules. As these are extremely delicate, the least pressure is followed by the absorption and destruction of their walls, and thus the communication is established. This theory we believe is borne out by the experiments and demonstrations of Poirier.

Clarke (*British Medical Journal*, 1894) reports a case of cyst of the epididymis as large as a pigeon's egg. Careful dissection of the cyst demonstrated the presence of a communication between it and the organ of Giraldés. A microscopical examination of the contents revealed the presence of spermatic particles.

These cysts vary in size from a pea to a hen's egg, and may be either single or multiple, the latter being the more common. These cysts may contain simple serous fluid, or at times a milky fluid. The latter variety are usually to be considered as spermatoceles. In seven of our cases this milky fluid was found, but the microscope failed to reveal the presence of spermatic particles except in three. In the other four cases the fluid contained a large quantity of finely divided fat globules. These results are borne out by the reports of Velpeau, Dénucé, Poirier, Hochenegg, and Reclus.

Although it is perfectly possible that a cyst may have originally been one of the serous variety, a rupture of one or more of the seminal tubules would permit of the escape of spermatic particles, and a true spermatocele result. Having recently adopted the open method as a routine treatment of hydroceles, we have been impressed with the great frequency with which encysted hydrocele of the tunica vaginalis is associated with cysts of the epididymis. We found them in the young as well as the aged. In our castrations for the relief of enlarged prostate we have found them uniformly present.

While the mere presence of simple cysts in the epididymis are in themselves perfectly harmless, yet we have known of several cases in which the testicle has been removed for tuberculosis and cystic sarcoma, an examination of the excised organ revealed the presence of several simple cysts. Even Velpeau on one occasion made a diagnosis of cystic sarcoma, but the incision for the removal of the organ revealed the presence of the cysts.

The diagnosis is rather difficult when small; when large, transmitted light will reveal the presence of fluid. They should be treated the same as hydrocele,—incision and drainage.

In conclusion, we wish to state that after a careful perusal of the literature, the theory of retention as the cause of formation of these cysts seems to be the most rational one.

Complete Obliteration of the Left Subclavian Artery in the Course of Acute Aortitis.

At a meeting of the Paris Anatomical Society, held on October 8 (*Gazette hebdomadaire de Médecine et de Chirurgie*, October 14) M. Iselin reported the case of a man, 54 years old, who, at the time of making an exertion, had felt a violent pain at the root of the neck, and at the same time begun to suffer with intense dyspnea. The pain disappeared in the course of a few hours, but the dyspnea continued, and increased to such a degree that the man could not work. It was inspiratory, and was not explained by the state of the kidneys, the heart, or the lungs. There was no pulsation of the arteries of the left arm, and there was dilatation of the aorta. The man died suddenly. Post mortem, the heart was found to be hypertrophied, the aorta was three fingers-breadths in diameter and brittle, and the left subclavian artery was completely obstructed by a clot, from its origin to that of the vertebral artery. There were the lesions of acute inflammation in the whole thoracic aorta.—*New York Medical Journal.*

SPECIMEN OF CEREBELLAR ABSCESS, WITH REMARKS ON DIAGNOSIS.[1]

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There is no portion of the human anatomy that requires a more specific line of symptoms to determine pathologic lesions within it than the cerebellum. Many of the symptoms common to abscess in other portions of the encephalon are entirely wanting in abscess of this portion of the brain. While, on the other hand, many of those distinctly due to cerebellar disease are absent in abscess involving the cerebrum. Within the past year and a half three cases have come under my observation, the symptoms of which have borne so great a likeness to each other that I think their importance as diagnostic symptoms of abscess in this region is past doubt. The following history represents in almost every detail the symptoms presented in all of these cases, and I think will bring out more clearly than I can in any other way the points that seem, to my mind, pathognomonic of this disease.

On April 5 Dr. Edward F. Backmann was called to see Harold M., mulatto, 2½ years of age, who had been ill for five days. The history furnished me by the doctor was that the temperature at the time he saw him was 100, pulse 112, child very languid, rather stupid, tongue protruded slowly when asked to show it. Head slightly inclined to the left. The child was remarkably well developed. Obstinate constipation; only after the use of one-tenth grain of calomel every hour for twelve hours, in conjunction with Rochelle salts (given the last two hours), could a bowel movement be secured.

On the morning of the 6th the temperature was 101⅖° F., the pulse 120. Cold-water sponging succeeded in reducing the temperature to 100°, the pulse, however, became quicker and more running; temperature declining, which the doctor said was a feature that particularly attracted his attention.

On the morning of the 9th temperature had dropped to 98° F. and the pulse increased to 130. The child whined constantly. This distressing symptom was kept up incessantly. Decided stupor. The child could only be roused to recognition by shaking it, and when

[1] Read at the College of Physicians of Philadelphia, May 4, 1897.

asked where his pain was, said he was very tired and wanted to sleep. The mother stated that the only symptom he complained of was the constant tired feeling. Pupils were dilated, though reacted slightly to light, up to the tenth day of his illness. There was rapid emaciation; from an unusually fat and well-developed child he became a mere skeleton within a period of seven days.

The child about one year previous to this attack of illness had suffered an attack of bronchial pneumonia, which left him very weak. There was also an account of his having fallen, striking the occiput against a bureau, about the time of his convalescence from the pneumonia. These are the only noteworthy symptoms up until the present illness began.

This, then, is the history of the case furnished me by the doctor from the fifth day of his illness until I saw him in consultation, fourteen days later, and three days before his death.

Personal Examination.—The child was greatly emaciated, abdomen markedly scaphoid, decidedly semicomatose condition, the little patient rolling his head from side to side, fixed dilatation of both pupils, constant flexion and extension of the right leg, with to-and-fro motion of the right arm, the fingers being thrust into the mouth as the arm was carried across the face. Continuous whining, respirations were twelve per minute, but unusually prolonged. Relaxation of the sphincter of the bladder, but not of the rectum.

Physical Examination.—No evidence of depressed fracture of the skull, no disease about the mastoid region, tympanic membrane showed nothing abnormal. Small amount of serumen in both auditory canals. Both nasal cavities contained a considerable quantity of desiccated mucus, the removal of which caused some slight bleeding, owing to excessive engorgement of mucous membrane. The child had been treated at a dispensary for the nose and throat several weeks before the present illness, the mother stating that for the past month it had had a very offensive discharge from both nostrils. The temperature at this time was 96° F., the pulse 160.

I saw the case a second time twenty-four hours later, when the temperature was 94° F. and pulse about 186, but then so running that it was extremely difficult to make an accurate count. The small amount of urine that we were enabled to secure showed the presence of sugar; further examination of it was not satisfactory, owing to the small quantity.

There is among the group of symptoms here narrated some which go to prove, I think, beyond any question of doubt, the existence of cerebellar abscess. Not only were they clearly manifest in the three cases that have come under my observation, where the diagnosis made

was confirmed in two of them by autopsy, but these definite symptoms have also been shown to exist in a case reported before the Otological Section of the College of Physicians, at a former meeting, by Professor B. Alexander Randall. The most important of these symptoms I believe to be the marked discrepancy between the pulse and temperature; (2) absence of local paralysis; (3) presence of sugar in the urine; (4) fixed dilatation of the pupils. We may add in this connection that while the glycosuric centre is said by physiologists to be located in the floor of the fourth ventricle, it has also been demonstrated that interference, not only in this region but also within the pons varolii, or the cerebellum itself, or even irritation of the pneumogastric at this point, will likewise cause sugar to appear in the urine. It is therefore most natural to expect the pressure arising from cerebellar abscess to also produce this symptom.

Change in respiration may also be accounted for by pneumogastric interference. While the discrepancy between the pulse and temperature has been noted in all cases of cerebellar abscess, it is not usual to find the discrepancy until after the stage of pus-formation, which is usually about the third day. Previous to this time you have the usual high temperature and pulse that go with inflammation in any other portion of the encephalon. I therefore have not noted the discrepancy until the inflammation reached its highest point,—namely, pus-formation. That infection in this case was through the ethmoid is, I believe, past doubt.

The autopsy in the above case was made twelve hours after death, and the brain, in addition to showing a large quantity of pus in the left hemisphere of the cerebellum and the entire lobe being covered with fibrous exudate, there was also a firm adhesion of the membrane over the cortex of the middle cerebral lobe, which probably furnished the irritation which caused the constant motion of the arm and leg.

Treatment.—The treatment of these cases is very clear, there being but one indication, and that is to trephine and evacuate the pus. A trephine opening made below the inferior curved line of the occipital bone will come directly down upon the hemisphere of the cerebellum. Owing to the extreme thinness, also absence of the diploe at this point, but little difficulty should be encountered in an operative procedure, and I am convinced (thoroughly) that a percentage of these can be saved by such treatment.

THE NEWSPAPER AS A PREDISPOSING CAUSE TO CRIME.

By Stanley Warren, M.D.,

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From the medical view all crime is the result of disease, either hereditary or induced by immoral stimulus, or bad hygienic surroundings. Therefore our duty, as physicians, is to study its causes and eliminate as far as possible such conditions as directly or indirectly predispose to disease that has for its sequel crime.

While the church and state are dealing with crime on moral and legal grounds, we as physicians can point out to our representatives and people who by their position, influence, and vote can at least put an end to one of the most potent and growing causes of crime in the present day.

Crime, like other diseases, is contagious and infectious. It has its microbes contaminating the moral atmosphere of a community, and unfortunately these microbes are visible to the eye, and have access to our brain through the organ of hearing, and so we are doubly exposed to its poison. These little black *devils* clothed in printers' ink stare us in the face the first thing in the morning, and are shouted into our ears every hour in the day as the newsboy cries his wares from every street-corner in his inimitable way, "'Ere you are, full account of the horrible murder." That perhaps has happened in New York City or on the Pacific slope, or possibly in the sunny South, and so in an hour's time a full, illustrated account of some horrible tragedy, committed a thousand miles away, goes into every home in the city or the town, from the mansion on the hill to the low dives in the squalid quarters of the city, where they are translated into every mother's tongue, and so the seed are sown to spring up and bear fruit in a dozen different cities as a counterpart of the original crime, yet realistic in all of its horrible details except originality.

How the Newspaper propagates Crime.

(1) By suggestion.

(2) By creating an insane desire for newspaper notoriety.

(3) By placing a premium on crime.

The newspaper is a hypnotic agent, and stands in the same relation to the people as does the hypnotist to his subject. But, fortunately, there are some newspapers that never get beyond the first stages of hypnotism,—that of sleep.

Hypnotism, as we understand it, is the influence of mind over mind and through mind over matter.

In the newspaper we see the suggestion of the crime, the notoriety from the committal of the crime, and many times the premium given in the way of immense sums of money by rival papers, for the only true confession or for a detailed account of the methods employed. Some may suggest here that the newspaper prints the penalty of the crime, but conscience does this also, and a man or woman who does not hear the warning cry of his or her conscience pays little attention to the warning of a penny newspaper. It is easy to see the result of newspaper suggestion, for instance, some fiend kills, by decapitation, in San Francisco. In a week's time sporadic cases of like crimes occur over the entire country. A man throws vitriol in the New England States; read the papers and you will see in a few days notice of a like crime in another locality perhaps a thousand miles away.

Take the crime of rape, so prevalent throughout the South, and which is gradually creeping into the North *pari passu* with the negro. You say, account for this. Here you have the ignorant negro, who cannot read the newspapers, and, besides this, has an animal passion in which desire prompts, and so these conditions are present; but go through the South into the towns and villages, and then into the negro shops, their cabins, and even into the fields, notice the thumb-worn and dirty papers and journals, illustrated and filled with graphic accounts of the deeds of the negro rapist. Stand aside, unseen, and listen to their conversation on this question, see their envious glances, and hear their words of envy as they discuss these horrible deeds. What care they for the penalty? The newspapers have sown the seed, the innocent women are forced to eat of the bitter fruit. Now that they are getting more education, there is scarcely a community but where a third of them can read, and do read, assiduously, every newspaper and journal which comes into their possession. How do you account for the almost entire absence of this crime in antebellum days? It was before the day of pictorial and sensational journalism.

Among certain classes of people, especially those of the lowest degree morally and intellectually, with criminal hereditary tendencies, there is along with these diseased predispositions an insane desire for newspaper and all kinds of notoriety. Where is it better illustrated than in their own quarters? Go into their circles and notice how the leaders conduct themselves, when their names appear in print as witnesses or participants in street rows, etc. How they pose before their fellows as—to use their own expression—"warm stuff." Then go into the higher circles. Note the number of hysterical, emotional women who attend these notorious trials, shower the prisoner with

flowers and photographs disgusting even to this brute in his cage. All seeking notoriety, trusting to get some newspaper notice.

Why is crime on the increase among women as well as men? Divorces, shoplifting, notorious conduct on the street,—one traceable reason is to satisfy an insane vanity to see their faces smiling from the pages of some penny newspaper, to see their names and deeds in print, perhaps as a wedge to an opening to some brilliant engagement with a vaudeville company or enterprising manager of a museum.

Then, lastly, the premium on crime.

This predisposes to more crime because it is a consideration to the hardened criminal. These men are so steeped in crime, and have so often escaped punishment through laxities of the law, that they sit about their dens working out in their fertile, diseased brains some cunning scheme to commit a crime so unique in its plot, and no doubt suggested by newspaper reports of other unheard of crimes, that it will bring a good price in the newspaper market, *for the original manuscript.* And so there are many other crimes, which are hardly proper for a medical magazine, accounts of which appear daily in the newspapers throughout the country that are possibly more directly traceable to newspaper publicity than those previously mentioned. And these are the reasons which I think are sufficient to bring this question of "newspaper publicity of criminal news and its serious consequences" before the people and their representatives. Perhaps the greatest of all reasons is one in which the newspapers will agree with me,—*i.e.*, that the newspaper is necessary to our progressive age, from a commercial, educational, and social stand-point, and purged of this obnoxious and crime-producing feature, we can take it into our homes as the best friend we have. I believe the majority of the best newspapers desires to suppress this new feature of journalism, and yet they are compelled to keep it up on account of their rivals. Therefore the peoples' only alternative is to ask their representatives in National and State Congresses to make such laws as will prohibit the publication of this class of news. Even now the cleaner sheets are beginning to see where this so-called yellow journalism is leading us and are crying stop. While this may be from mercenary motives, yet it is a straw which shows the direction of the wind. We see daily the fruits of this kind of journalism hanging from the rope's end, filling our prisons and insane asylums, and dying on the hospital cots from self-inflicted wounds.

The newspapers have always been a friend and aid to the medical profession, and yet they have not hesitated to find fault with some of our methods,—namely, vivisection,—and have done much to stop this unnecessary method of scientific research, and therefore, I trust, they

will receive this expression of an opinion on their methods of journalism favorably, for I think from a medical stand-point we have that right, and therefore I offer this opinion, through our profession, to the people, and trust that it may show its fruit in such laws as the condition demands.

SOME ANOMALIES FROM THE ANATOMICAL ROOMS OF THE UNIVERSITY.[1]

By Jas. J. Walsh, A.M., M.D.,

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Anomalies of Arteries.

The Right Subclavian arising from the Lower Part of the Descending Arch of the Aorta.—The artery came off from the posterior part of the dorsal arch and found its way to its normal place, the groove in the first rib, between the origins of the scalenus anticus and medius muscles on the right, by passing behind the trachea and esophagus. The inferior or recurrent laryngeal nerve not recurrent on the right side, as a consequence of the absence of the subclavian from its usual position. The loop around that vessel was absent and the nerve supplied the larynx directly. The right vertebral did not come from the subclavian, but from the common carotid on this side, very shortly after the origin of that vessel from the arch.

A fifth vessel springing from the arch was the left vertebral, coming off, as is usual when it does not arise from the left subclavian, from a point between the origins of that artery and the carotid, on the transverse arch. (See Fig. 1.)

The explanation for this anomalous origin of the right subclavian seems to be that in some way, in very early embryonic life, the right fourth arterial arch, which normally becomes the innominate, failed to develop, and then, to quote Quain,[1] "the right subclavian is continued from the primitive dorsal aorta, as its natural channel is closed."

This anomaly is not so very rare; but the origin of five arteries from the aortic arch is very rare under these circumstances, though it happens somewhat more frequently with the innominate absent, and

[1] A Selection with some Additions from the List of Anomalies to which was awarded the Demonstrator's Anomaly Prize. The collector has to thank Dr. E. W. Holmes for permission to publish these notes, and for cordial encouragement and frequent assistance in the collection and classification of the anomalies.

the right subclavian and carotid coming off close to one another, near the junction of ascending and transverse aorta.

Anomalous Vertebrals.

The right vertebral from the right common carotid has been mentioned above. This origin seems only to occur when the innominate is absent and the right subclavian displaced to the other side of the arch.

The right vertebral with two roots, both from the subclavian, the larger one entering the foramen in the sixth cervical vertebra, as usual,

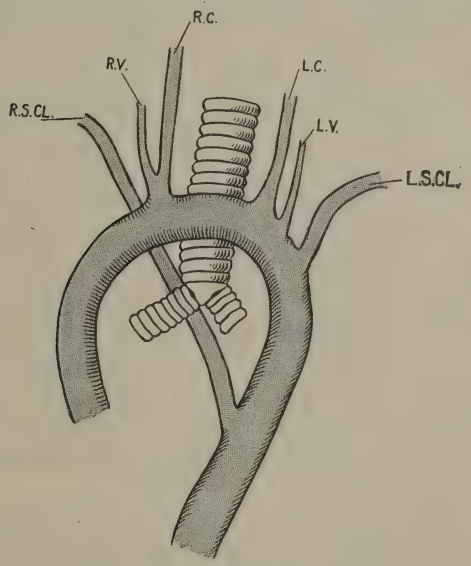

Fig. 1.—Diagrammatic.

R.S.CL., right subclavian; R.V., right vertebral; R.C., right carotid; L.C., left carotid; L.V., left vertebral; L.S.CL., left subclavian.

the accessory artery, the foramen in the fifth. At first this was thought to be a reduplication of the vertebral, but the arteries fused into one before the circle of Willis was reached.

The Right Vertebral of very small Size.—This was at first thought to be an absence of the vertebral, but on opening the brain a very small artery, representing the vertebral on this side, was found, which had evidently been removed in the dissection of the neck.

In eighty-two bodies, examined especially for this anomaly, the left vertebral came from the arch of the aorta five times. Its place of origin in these cases was always between the left common carotid and subclavian.

Anomalies of the Axillary Arteries.

The axillary, in the order of its branches, was found so anomalous that to find it giving off its seven branches in strict text-book order was the exception rather than the rule. While the arrangement usually given is for purposes of description, probably the best, because absolutely the most common one, variations seem to occur in more than half the cases.

The most frequent variation seemed to be the origin of the superior and acromial thoracic by a common trunk. (This is described as a thoracic axis by some anatomists, who claim that this is more common than the separate origin of the arteries.) Next in frequency was the absence of the alar thoracic as a separate branch. The origin of the three arteries, usually assigned to the third portion, was the most constant part of the ordinary description, but even this was frequently disturbed. The subscapular gave origin to the posterior circumflex, or both circumflex came off by a common trunk, or, finally, an additional branch was noted from the third portion. In two cases this large branch was an accessory, the internal mammary coming off below all the other branches. In three cases a vas aberrans that joined the radial twice, the third joining the ulnar. In four the radial came from the third division of the axillary, two of them occurring on the same subject exactly symmetrically. On both arms of one subject the ulnar came from just the termination of the axillary. While these axillary origins of the arteries of the forearm are not uncommon, anomalous origins symmetrically—that is, at corresponding points on both arms—are very rare.

In one case the large branch of the axillary passed between the heads of the median nerve, while the main trunk itself did not. This large branch came off from the second portion of the axillary, and gave origin to the subscapular and the anterior and posterior circumflex, and to the superior and inferior profunda arteries of the arm, besides some muscular branches.

This branch was as large at its origin as the artery that afterwards became the brachial; and the explanation of its occupying the place that artery usually has in relation to the brachial plexus seems to be that it was originally the true brachial artery which became occluded in early life; the seeming brachial of later life being really a vas aberrans, from which the ulnar and radial are developed.

A Venous Anomaly.

A Double Vena Cava.—In the first set of subjects brought to the dissecting-room for the year there occurred a case of what might be

described as double vena cava. On each side of the aorta—the left somewhat farther away from the artery—a large vein ran from the common iliacs to the renal veins. A connecting vessel passed from one to the other where the common iliac veins emptied into them. The vein on the left ended at the left renal vein, the other being continued beyond this point as the vena cava proper. (See Fig. 2.)

In the embryo these two important primitive venous trunks of the abdomen are the cardinal veins, which are symmetrical, corresponding closely to one another on each side. Normally the left cardinal vein becomes occluded, and the single asymmetrical large vein on the right results. Here anomalously the left cardinal vein has re-

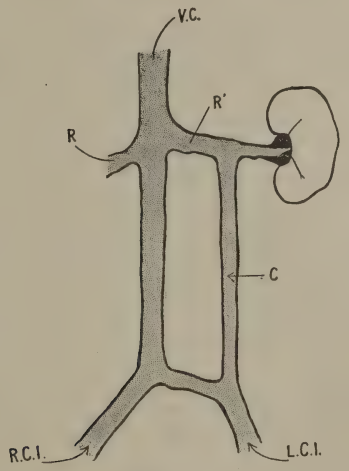

Fig. 2.—A Double Vena Cava.

V.C., vena cava; C., persistent cardinal vein; R. and R′, renal veins; R.C.I., right common iliac veins; L.C.I., left common iliac veins.

mained patulous as a connecting link between the left common iliac and the left renal, giving the appearance of a double vena cava.

Muscular Anomalies.

The omo-hyoid muscle, on both sides, was absent in two subjects during the year. In two other subjects it was missing on one side, in both cases the left.

No compensatory arrangement of muscles to replace the function of the absent omo-hyoids was found, though in two of the cases this was especially looked for. At the time when the anomalies were noted Bland Sutton's theory of muscular degeneration with production

of quasi-compensatory fibrous and tendinous tissue was not familiar, so no anomalous thickening or multiplication of bands of fascia was looked for.

The biceps was found to have three heads in nine subjects, and in one four heads. (This in some subjects, where special note was made of it.) The accessory head in seven of the nine cases was a muscular slip that had its origin in rather close connection with the insertion of the coraco-brachialis and the origin of the brachialis anticus. In some of the cases the interlacing of the fibres of the coraco-brachialis and the biceps through this third head exemplified rather strikingly what Testut, in "Anomalies Musculaires," calls the anastomosis of these muscles. This third head joined the coracoid portion of the biceps usually about the middle of the arm.

In one of the two remaining cases the accessory head arose from the bicipital groove; in the other, from the lower part of the greater tuberosity.

In the case where four heads were noted, the third was the usual one from the coraco-brachialis insertion; the fourth arose on the posterior part of the humeral shaft.

In two cases the muscular bellies, attached to the coracoid and glenoid heads of the muscle, did not fuse for some distance below the middle of the arm, their usual place of fusion. In one of these cases the common biceps muscle, after the fusion, was less than an inch in length.

In some vertebrates there is found only one of the parts of this muscle, either the coracoid or glenoid, making a coraco-radial or gleno-radial muscle, as the case may be, to correspond to the biceps of the primates. As Testut[2] quaintly puts it, "If Nature has partly fused them in man, she takes care to isolate them from time to time, in order to recall their independence from a morphological standpoint. Such is the explanation of the anomaly."

MacAlister[3] describes three entirely distinct flexors of the forelimb in the crocodile; a brachialis anticus and a biceps completely divided in its whole course into separate muscles, a coraco-radial and a gleno-radial muscle, so to speak, and it is a condition very closely allied to this that obtained in one of the cases noted. Not that the anomalous muscles in question would indicate any special atavistic reversion, or anything more than the most generalized relationship between the vertebrates, but that "such aberrant muscular conditions may be referred to the development of an inherent constructive type abnormal for the species in question, but revealing its morphological significance and value by appearing as the normal condition in other vertebrates." [4]

The palmaris longus, in one case noted during the year, had two distinct muscular bellies, united by a small strip of tendinous tissue a little above the middle of the forearm.

In another case the belly of the muscle began below the middle of the forearm and extended almost to the insertion of the muscle in the palmar fascia, the tendon of origin being a bundle of tendinous fibres not unlike the long head of the biceps, only much smaller.

In four cases the palmaris was not found. In three cases it was extremely small, with a short muscular belly, and a long, slender tendon like the plantaris. No special effort was made, however, to note the percentage of occurrence of these anomalies.

The variations in the muscle serve to illustrate very well Bland Sutton's morphological theory of the metamorphosis and regression of muscle into tendon and fibrous tissue where "it is badly situated to exert its full contractile power, or on account of modification of the creature's habits, portions of and, in some cases, whole muscles become rarely used or rendered inoperative." [5]

A Sternalis Muscle.

A zealous amateur anatomist, while dissecting a "posted" subject, came upon a very perfect bilateral example of this rare muscle. Quain calls it the sternalis,[6] Testut the presternal muscle. On the left side it consisted of a fleshy, distinctly muscular belly, ribbon-like in form, about one and a half inches wide, attached to the tendon of origin of the pectoralis major, at the sternal end of the clavicle by a narrow terminally, somewhat rounded tendon. Below the other tendon, thinner and wider in extent than the muscle itself, fan-shaped, was attached to the cartilage of the sixth rib, and the aponeurosis of the external oblique. On the left the muscle was considerably smaller, and while it inserted above as on the right its other terminal tendon was attached to the cartilage of the fifth rib. On this side the muscle was nearly parallel with the sternum, or rather its median axis; on the right its course carried it away from the sternum below.

I have purposely refrained from speaking of either of its tendons as that of origin or insertion because the morphology of the muscle is still under discussion. For a long time the muscle was known by the name sternalis brutorum from its supposed constant connection with the rectus, and the fancied resemblance of the system of muscles thus formed to the long rectus of certain of the vertebrates, which runs to the second rib or even the clavicle.

Later, for partly comparative anatomical reasons, it was thought to belong to the sterno-mastoid.

Both of these highly erudite explanations have been mostly

abandoned now, for the simpler one that it consists of certain fibres of the pectoralis major, whose direction has been changed and position altered by some as yet not well understood developmental cause at an early stage.

D. J. Cunningham[7] has demonstrated that its innervation can in nearly all cases be traced to thoracic nerves, and innervation is now looked upon, anatomically, as a very positive indication of morphology.

In a number of cases of anencephalus fetuses this muscle has been reported present, so that in this case it was thought worth while to note the cranial and cerebral development of the subject, but nothing seemed abnormal.

The principle has reclaimed a number of supposed muscular atavistic reversions to the simpler plane of errors of embryonic development.

REFERENCES.

[1] Quain's Anatomy, London, Vol. ii, Part II, 1892. This has always been used as the authority on anomalies where another is not quoted.

[2] Anomalies Musculaires chez l'Homme. Par Leon Testut, Paris, 1884. This has been used very freely by the writer as a guide for the explanation and proper description of muscular anomalies.

[3] MacAlister, On the Flexor Muscles of the Vertebrate Limbs, Journal of Anatomy and Physiology, May, 1868.

[4] George S. Huntington, The Significance of Muscular Variations illustrated by Reversions of the Antebrachial Flexor Group. Transactions of the New York Academy of Science, Vol. xiv, August 28, 1895.

[5] J. Bland Sutton, Ligaments: their Nature and Morphology, Philadelphia, 1887.

[6] This is the name adopted in Die Anatomische Nomenclatur (nomina anatomica), von W. His, which embodies the report of the German commission on anatomical nomenclature, Archiv für Anatomie und Entwickelungsgeshichte, Supplement Band, 1895.

[7] Journal of Anatomy.

Treatment of Epilepsy.

Flechsig advises opium, beginning with five-sixths grain daily, distributed in three doses, and steadily increased until four or five grains daily are administered. At the end of six weeks the opium is stopped, and bromides are used,—in large doses, seventy-five to 100 grains a day, for a period of at least two months. The fits generally yield to the first dose of bromide. The treatment should be adopted only in chronic intractable cases of epilepsy in which the administration of bromides alone has failed. The contraindications are the *status epilepticus*, plethora, and cerebral focal lesions.—*Medical Record.*

ALUMNI NOTES.

The General Alumni Society.

In the spring of 1895, the absence of any organized body by means of which all the forces of the Alumni and former college-men of the University of Pennsylvania could be concentrated in unity of action and unanimity of purpose was recognized by some of the active and progressive Alumni. To supply this want the organization of the General Alumni Society was conceived and effected through the ever-ready, though not always effective, means of the general circular. Such men as could be reached through the then incomplete lists of graduates were asked to endorse the scheme, and become members of the proposed society. An organization was effected at a meeting in commencement week of June, 1895, and from that day the usefulness of the society has been evident in an increasing degree.

The General Alumni Society was organized to supply a real want, and not to in any way hinder or interfere with the work of the existing department Alumni societies. The objects of the society are thus set forth in its charter: "To cultivate and foster intimate relations and feelings of brotherhood among the matriculates and graduates of all departments of the University of Pennsylvania; to promote the interests and general welfare of the said University, and to maintain and advance the cause of higher education."

The results accomplished by the application of the University principle in other directions of college work form an object-lesson by which the founders of the society thought well to profit. In the adoption and application of the University principle in education Pennsylvania stands as one of the pioneers in the movement, without a peer in her accomplishments. The day when the undergraduate in any department, except the college, who took any interest in college enterprises, whether athletic, literary, or what, was considered a meddler or usurper of a jealously guarded privilege, is now lost sight of in the forgotten past. The undergraduates form one great community, and the graduates must fall in line and add to the vastness of that community. It is the spirit of the times, and has brought Pennsylvania to the very first notch in athletics, debates, dramatics, and scholarship. A man owes the same allegiance to his Alma Mater, whether his degree is in medicine, law, dentistry, or arts. The General Alumni

Society desires to unify the interest and purpose of all Pennsylvania men; in short, to demonstrate that in unity there is strength, and in strength there is power.—*The Alumni Register.*

Appointments.

Dr. Henry Page, Class of '94, has been appointed an assistant surgeon in the United States army. The appointment was made upon the result of a competitive examination held in October, 1897.

University Graduates.

Dr. Ewing Jordon, secretary of the General Alumni Society, has compiled the following statistics of all graduates and others from the University of Pennsylvania in all departments.

Total number of graduates of the University of Pennsylvania from 1757 to 1897 inclusive:

The College	2,976
Department of Philosophy	185
Department of Law	1,245
Department of Medicine	11,607
Department of Dentistry	1,011
Veterinary Department	175
Total	17,199

The duplications—that is, men who have graduated from more than one of the above departments—are by actual count:

Philosophy	115
Law	151
Medicine	213
Dental and Veterinary, estimated about	20
Total	499

This makes the total number of graduates up to last June inclusive 16,700.

Of the University Alumni there are estimated to be alive now 12,066, comprising the following:

College graduates	1,664
College non-graduate matriculates	1,968
Philosophy	175
Law	731
Medicine	6,442
Dental	923
Veterinary	163
Total	12,066

Necrology.

Dr. John Berrien Lindsley, Class of '43, M., born at Princeton, N. J., October 22, 1822, died at Nashville, Tenn., December 8, 1897. Dr. Lindsley was one of the oldest and best-known physicians in the South, and was perhaps one of the last of those who were at the bed of Andrew Jackson when he died, fifty-two years ago. He was very prominent in the educational advancement of Tennessee, and was one of the founders of the American Association for the Advancement of Science, and was a Fellow of the Royal Historical Association of London.

Dr. James Cooper McKee, Class of '52, M., born in Butler, Pa., May, 1830, died December 11, 1897. Colonel McKee entered the army as a contract surgeon, and a year later he regularly enlisted, and served during several of the Indian campaigns of the years immediately preceding the war, at the breaking out of which he was taken prisoner. He was retired in 1891 with the rank of lieutenant-colonel.

Dr. E. Livingstone Welling, Class of '60, Medical Department, died at his home in Pennington, N. J., November 29, 1897.

Dr. George Henry Horn died in Philadelphia, November 25, 1897, at the age of 58 years. He graduated from the Medical Department of the University in 1861. Dr. Horn was a noted entomologist, and at the time of his death he was president of the American Entomological Society. He was also for many years secretary of the American Philosophical Society.

Dr. Archibald Higgins, of the Class of '54, died at Manasquan, N. J., October 9, 1897.

A Sign of Cardiac Failure.

Henry Jackson, of Boston, calls attention to one of the signs of cardiac failure which is of great import, though it meets but little notice in the articles upon this condition,—namely, a discrepancy between the rate of the arterial pulse and the rate of the heart-beats. He has observed in many instances that in cases of extreme cardiac weakness the pulse was very slow, intermittent, and irregular, while the heart was rapid, and refers not to cases in which it is extremely difficult to count the pulse, as is always the case when the pulse is irregular, especially when the rhythm of the pulse is irregular, but to cases in which the most accurate taking of the pulse by trained individuals does not show a rapid pulse-rate, yet examination of the heart shows that its action is extremely rapid.—*Boston Medical and Surgical Journal.*

EDITORIAL.

THE SIGNIFICANCE OF PRESYSTOLIC APICAL MURMURS.

Fauvel was the first to point out definitely the relation of the presystolic apical murmur to mitral stenosis. In 1843 he reported three cases in which the presence of a presystolic murmur at the apex led to the recognition of mitral obstruction, the diagnosis in each instance being verified by post-mortem examination. Later Walsh, Fagge, and Gairdner reported similar cases, thus confirming Fauvel's observation. Important discoveries often lead to unwarranted conclusions, and so in this instance; out of the discovery that mitral stenosis produces a presystolic murmur at the apex grew the assumption that this sign is an unerring indication of the lesion. Austin Flint was the first observer to refute the latter view. In 1862 he reported two cases in which a presystolic murmur had been recognized during life, but in which post-mortem examination failed to reveal any disease of the mitral valves. Similar cases have been noted by Osler, Steele, Sansom, Gairdner, Fisher, Phear, and others.

Phear (*Lancet*, September 21, 1895) has collected forty-six cases of presystolic apex murmurs without mitral stenosis. In seventeen of these the chief lesion was aortic regurgitation; in nineteen the pericardium was entirely or partially adherent; in ten there was neither aortic regurgitation nor pericardial adhesions. Kasem-Beck has recently (*Centralblatt für innere Medicin*, February, 1897) cited a case in which a small aneurism of the left ventricular wall gave the usual signs of mitral stenosis.

Many theories have been advanced in explanation of presystolic murmurs occurring in diseases of the heart other than mitral obstruction. According to Flint the presystolic murmur heard in aortic regurgitation is due to a "functional" narrowing of the mitral orifice. He contended that in affections of this disorder the left ventricle is so rapidly filled with blood that the mitral leaflets are floated away from the ventricular walls, and thus being brought into coaptation are thrown into vibration on the occurrence of auricular systole. Maguire suggests that in aortic regurgitation the anterior flap of the mitral valve, by hanging between two convergent currents, both flow-

ing into the ventricle, the one from the aorta and the other from the auricle, is thus caused to vibrate, the vibration being transmitted, as in other mitral murmurs, to the apex.

Phear holds that it is possible to have narrowing of the mitral orifice without contraction of the fibrous ring to which the valves are attached, and without gross organic changes in the valves themselves. He says that it is generally recognized that one function of the musculi papillares is, by their contraction, to draw together the flaps of the mitral valves, and so aid in the closure of the mitral orifice. These structures (the papillary muscles) are disposed in the left ventricle in two groups, the one situated anteriorly and to the left, the other posteriorly and to the right; from the former chordæ tendineæ pass to be attached to the free edge and ventricular surface of the anterior portions of both flaps of the mitral valve; the posterior parts of the valve being similarly connected by chordæ tendineæ with the posterior set of musculi papillares by contraction of the papillary muscles; then the valves are not only rendered tense, but are pulled downward, in such a way that these edges are brought into proximity, if not into apposition; and the mitral orifice, if not actually closed, is converted into a mere slit. Similar tension may be brought to bear on the valves by conditions other than contraction of the papillary muscles. As a result of endocarditis chordæ tendineæ are frequently seen presenting a thickened and contracted appearance. The condition is also seen, apart from gross lesions of the mitral valve, under circumstances of strain, such as is produced by the cardiac hypertrophy of Bright's disease or of aortic valvulary disease. In such cases, the author contends, the mitral valves may present a normal appearance, or by slight thickening may show evidence of the strain to which they have been subjected; but the condition is not necessarily associated with the slightest degree of organic mitral stenosis. With shortened and thickened chordæ tendineæ the mitral valves are held permanently in the position which in the normal heart they are made to occupy rhythmically by the contraction of the musculi papillares; this practically amounts to narrowing of the aperture, and, given a fair auricular contraction, will be attended during life by a presystolic murmur, although post mortem it may be possible to introduce as many fingers through the mitral orifice as in the normal heart. Of the forty-six cases in which a presystolic murmur was unassociated with gross lesion of the mitral valve, the condition of the chordæ tendineæ is mentioned in seven cases only; in three of these they are recorded as healthy, in four as thickened or shortened.

In the light of the foregoing observations it is clear that, while a presystolic murmur at the apex is highly significant of mitral stenosis,

the sign cannot be regarded as pathognomonic of the lesion. Neither can a presystolic thrill at the apex be regarded as an absolute indication of mitral obstruction, for such a thrill is mentioned as being present in twelve of the forty-six cases collected by Phear. In the diagnosis of mitral stenosis certain other signs, in addition to the murmur, should be sought for, particularly the extension of the area of cardiac dulness transversely beyond the right border of the sternum, and the accentuation and reduplication of the second sound at the pulmonary cartilage. The character of the murmur is also suggestive, the diastolic murmur of dilatation rarely culminating in that abrupt systolic shock which so frequently terminates the prolonged purring murmur of mitral stenosis.

Resection of the Cervical Sympathetic versus Thyroidectomy in Basedow's Disease.

Jaboulay reports three new cases in which he has resected the cervical sympathetic, raising the total to fourteen cases on record (the first in 1896), all of which have shown constant improvement. Péan, on the other hand, rejects this operation as transient in its effects, as he performed it in one case three years ago, principally to cure a concomitant epilepsy. There was at first marked improvement of both troubles, but the success was not permanent, and he never tried it again. He advocates thyroidectomy for Basedow's disease, stating "that it should only be performed after medical treatment has failed and before the disease has exhausted the strength to the point of compromising existence. The operation is easy when the goitre is small, not inflamed, and readily enucleated; a few minutes are all that are necessary to remove the tumor through a small median, vertical incision without any necessity of ligating the vessels if his hemostatic forceps are used, which serves also for retraction. Even in the most serious cases the operation is not difficult, but the tumor should be removed by *morcellement* after compressing the vessels. Consecutive myxedema is rare and transient." If the patient is troubled by hypersecretion of the laryngeal and tracheal liquids, he suspends the operation, raises him to a sitting posture, and removes the mucus with a mounted sponge. "Section of the cervical sympathetic and exothyropexy have not yet recorded a sufficient number of cures to be profitably opposed to thyroidectomy."—*Bulletin de l'Académie de Médicine.*

MEDICAL PROGRESS.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM PEPPER, M.D., LL.D, AND JAMES TYSON, M.D.,

ASSISTED BY

M. HOWARD FUSSELL, M.D., AND A. O. J. KELLY, M.D.

Pseudo-Aortic Insufficiency.

Bonnet (*Lyon Médical*, August 3, 1897) reports a case admitted to the wards of Saint-Pierre with all the physical signs and symptoms of aortic insufficiency except that the apex-beat could never be felt. There was a double aortic murmur, the diastolic element conducted down the sternum on the left side, —Corrigan's pulse, capillary pulsation. The apex-beat could never be felt. The cardiac dulness was not greatly increased.

At the death of the patient, it was found that he had acute endoarteritis of the arch of the aorta, but the aortic valves were entirely competent, as proven by the hydrostatic test. He concludes the report as follows:

(1) Aortitis without any lesion of the valves can give for a time all of the symptoms of aortic insufficiency, particularly the diastolic murmur, having all the characteristics of a true regurgitant murmur.

(2) That the diagnosis in these cases can be made by palpation, as to the presence or absence of the apex-beat.

If the apex-beat is absent there is no regurgitation.

Administration of Quinine in Malaria.

Ballagi (*New York Medical Journal*, October 30, 1897) says, in a case of malaria properly diagnosticated, when quinine does not cure we must attribute the failure to faulty administration.

The best form without doubt is in solution. If the patient refuses this, it may be given in wafers. Children can take the tannate of quinine in solution made very sweet.

Dose.—In order to suppress an attack at least twenty-five grains must be given *six* hours before an attack.

The quinine should be continued for two or three weeks in smaller quantities, but given at least six hours before the attack.

Pleuritis.

James (*Pennsylvania Medical Journal*, November, 1897) has an article on pleuritis which deserves careful reading. His conclusions are as follows: They are fully up to date. Every chronic inflammatory process in either lung or

pleura that is not already infected with tubercle bacillus is in constant danger of becoming so. Hence, all such subacute processes should be carefully watched and treated until every trace of disease has disappeared. Fluid in the pleural sac compresses the lung so that respiration must be carried on upon the sound side, the muscles on the diseased side atrophy from disuse. If these atrophic muscles are not strengthened by proper gymnastics a feeble respiratory action is present, especially at the base, and hence becomes a fertile field for the growth and multiplication of tubercle bacilli. For the above and other reasons all fluid accumulations should be gotten rid of as soon as it is evident that nature will not absorb them. The reappearance of fever, after it has disappeared from the acute stage, is strongly suspicious of the presence of pus, which should be promptly evacuated and the cavity thoroughly drained.

Inspection of the Esophagus and the Cardia.

Einhorn (*New York Medical Journal*, December 11, 1897), after describing the esophagoscope and its use, concludes with these words of Hacker: "It is certain that the esophagoscope is already of aid in the early recognition or exclusion of cancer of the esophagus or of the cardia of the stomach. It aids also in discovering foreign bodies in the healthy as well as the diseased gullet, and in quickly and delicately removing such bodies without a bloody operation."

Disinfection by Formaldehyde.

Sprague (*Medical News*, December 11, 1897) quotes from the *Public Health* to prove that formaldehyde has no deleterious effect upon textile fabrics, hair, fur, or leather, even though of the most delicate color. He has made independent researches to prove its effects upon cultures of diphtheria, anthrax, and typhoid. Cultures of these germs were protected in various ways. When exposed in the gas-chamber and wrapped in various coverings the germs were always killed. He used an apparatus in which he could get high percentages of the gas as well as a constant percentage.

He believes that enough data have already been given to prove that with formaldehyde rapid and efficient disinfection may be secured, and that without injury to the most delicate fabrics.

SURGERY.

UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.,

ASSISTED BY

ELLWOOD R. KIRBY, M.D.

Early Nervous Symptoms in Pott's Disease.

Grognot (*Journal de Médecine*, July 10, 1897) has collected a series of observations of considerable importance on various early symptoms of spinal disease, in order to show the ease with which an erroneous diagnosis may be

made. The painful symptoms of the early period of the disease are very variable, and are rarely referred to the vertebral column. They consist in radiating pains following the course of a nerve-trunk in the neck, thorax, abdomen, upper or lower extremity, and are characterized, according to the individual case, by a sensation of constriction, burning, tearing, or stinging. These radiating pains vary considerably, being sometimes intercostal or at other times of the character of girdle-pain, and in the lower limb they simulate sciatica. They are apt to alter in position, and on this fact the author lays considerable stress: thus, intercostal pain on one side, which might be confounded with other conditions, more particularly pleuritic, but when appearing in corresponding position on the other side, will give an indication of its probable nature. Pain along the course of one sciatic nerve would warrant the diagnosis of sciatica, but when the opposite side becomes affected a graver lesion must be suspected. More difficult of diagnosis are certain superficial or deep localized areas of pain which do not correspond with any particular nerve distributions, and which may be situated in any part of the trunk. In character they are dull, indefinite, and erratic in their duration. The importance of these is not great by themselves, but at the same time they have been mistaken for muscular rheumatism, lumbago, etc., and the author states that in some cases they have been explained as reflex from lesion of an internal organ. Sometimes arthralgia is observed appearing suddenly without any premonition, and, according to Grognot, the knee is the joint most frequently attacked. Their duration is variable, and it is not surprising that the diagnosis of rheumatism has been made in such cases, and, if treated accordingly, the result will be *nil.* There may be pains in the limbs very similar to the lightning pains of tabes. In certain cases the pains may come on in crises of extreme violence, and intermittent in character, and many cases have occurred in which a diagnosis of renal colic or intestinal worms has been made, and cases are also quoted in which there have been veritable gastric crises causing considerable difficulty of diagnosis. Such, of course, are exceptional, for generally speaking the referred pain of spinal disease is more constant in character, and usually follows some movement or effort, and they are rarely affected by ordinary treatment. An important fact to bear in mind is that these pseudo-neuralgic pains are more common in adults than in children. It is not uncommon to find these pains accompanied by muscle wasting. There may also be motor symptoms in addition, such as paralysis of irregular distribution in the limbs. In very many cases there will be other indications outside the nervous system of the nature of the disease, such as pulmonary tubercle, tuberculous nephritis, etc.; but the author observes that there may be considerable difficulty in the early stages in arriving at a diagnosis of vertebral disease, and it is at this period that diagnosis is most important.

Post-Anesthetic Paralysis.

This condition was the subject of discussion at the meeting, last month, of the Association Française de Chirurgie (*British Medical Journal,* November 13, 1897). Schwartz operated on a man for the radical cure of hernia; chloroform was used. The operation proved easy, and was soon over, though slight syncope occurred, promptly dispelled by artificial respiration. For a whole day afterwards the patient seemed confused, yet directly on coming to he felt tinglings in the right thumb and forefinger. Next day there was paralysis of

the flexor longus pollicis and the flexors of the forefingers, without anesthesia or hyperesthesia. When he attempted to move the lower extremities, the quadriceps on the right side was found paralyzed. After massage and electricity all these paralyses disappeared, and no trace remained seven months later. Schwartz declares that the loss of power could not have been due to pulling on the brachial plexus during artificial respiration, nor was the thigh tightly strapped. The patient remembered that he had noticed how he had grown clumsy with his right hand for some time. Thus there was probably some central lesion aggravated by the anesthetic. Büdinger, in a fatal case of monoplegia after chloroform, detected an area of softening of the cerebral cortex. Paralysis of a cranial nerve has been noted. In other cases simple hemiplegia was observed. Chipault states that he observed an attack of right hemiplegia in a patient recovering from chloroform; death occurred shortly afterwards, and the lateral ventricles were found full of blood. Reboul, in the course of the discussion, described a similar case; the patient was 60 years of age, and a very large calculus was removed by suprapubic lithotomy; he had inhaled chloroform well. In all probability the usual lesions were present beforehand in these cases of hemiplegia, but putting aside the effects of pressure from straps, unnatural or violent movements of joints and fixing of a limb for a prolonged period under anesthesia, there may be genuine post-anesthetic paralyses, as Schwartz believes.

Protargol in the Treatment of Gonorrhea.

Neisser (*Therapeutische Wochenschrift*, October 24, 1897) describes protargol as a protein compound containing 8 per cent of silver, a fine yellowish powder soluble in hot or cold water with the aid of shaking. Its most characteristic property, he says, one not possessed to so great a degree by any other silver salt, is that of not being precipitated from a watery solution by a weak solution of sodium chloride, by dilute hydrochloric acid, or by caustic soda. Ammonium sulphide deepens the color of the solution, but does not occasion a precipitate. Concentrated hydrochloric acid gives rise to precipitation, not of silver chloride, however, but of protargol itself, which, on the addition of more water, dissolves again. This property, he thinks, makes it more capable than any of the other silver salts of penetrating into the tissues. Protargol, he says, is superior to argentamine, from the fact that the employment of solutions of most efficient strength, of ¼, ½, or 1 per cent., proves irritating only in exceptional instances and to a trifling degree, so that it may be used from the very outset, as soon as the gonococcus is discovered.

So far as experimental investigation of its antiseptic power goes, says Neisser, this has not yet been concluded, but clinically it has been shown to be equal to the best preparations known. The use of protargol, he continues, admits of a modification of treatment that seems to be exceedingly efficient, that of prolonging the action of the remedy on the mucous membrane without reducing the strength of the solution, and without limiting the depth of its action for fear of any chemical decomposition taking place. It is undoubtedly better, he thinks, to give single injections lasting for half an hour than to employ several small ones. His practice is, first, to ascertain if gonococci are present, and, if they are, to begin with the injections at once. He gives them three times a day. Two of these injections last only five minutes each, but the third consumes half an hour. Very soon, he says, often after only a few days,

the treatment may be restricted to this one prolonged injection daily. The extraordinary mildness of this treatment, he remarks, admits of its prolongation to three or four weeks' duration, and therein, he thinks, often lies the chief cause of its good effects. He thinks it best to begin with a ¼-per-cent. solution, and increase the strength very soon to ½ and 1 per cent.

Neisser gives it as his decided impression that he never had such sure and prompt results in the treatment of gonorrhea as since he began the use of protargol. In practice, he says, it has fulfilled perfectly the great expectations that theoretical considerations had raised, and he has no doubt that others who may try it will agree with him, even if some accident interferes with their success on the first trial.

The Surgery of the Stomach.

Ewald (*Boston Medical and Surgical Journal*, October 14, 1897), of Berlin, read before the recent International Medical Congress a paper on this subject, which his large experience renders of great interest. The prognosis of operation upon the stomach has definitely improved, although there is still a marked difference between the results as reported by surgeons and physicians. He had had under observation in the past two and a half years twenty-nine cases of gastro-enterostomy, seventeen cases of resection, and twenty-two cases of gastrostomy. In most of the cases the condition dealt with was carcinoma, but there were three cases of benign stricture of the pylorus. In all but three cases the immediate operative result was perfect. The following were the final results: twenty-six gastro-enterostomies, with sixteen deaths,—or 62 per cent.; thirteen resections, with nine deaths,—or 69.2 per cent.; and twenty-two gastrostomies, with twelve deaths,—54 per cent. mortality. These results are more unfavorable than those reported by surgeons, especially those from Mikulicz's clinic. But the surgeon, says Ewald, often regards a survival of the operation as a cure.

The limitations of the indications for operation, which are very variable, cause the statistics to vary; for example, the exclusion of manifestly unfavorable cases, which improves the statistics. The principal reason for failure lies in conditions which are beyond the surgeon's control. Cases often present insurmountable difficulties.

For the prognosis the following factors are important: (1) The position of the tumor on the stomach wall and the extent of surface involved; (2) the extent of metastatic involvement of other organs; (3) the extent of cachexia and consequently diminished powers of absorption and assimilation after the operation. Before opening the abdomen one can form no idea of the position and relations of the tumor. The so-called early diagnosis of carcinoma by analysis of the gastric secretion has not proved of value. The increase in the lactic acid appears, as a rule, later than the time the tumor first becomes palpable. Without the palpable tumor the diagnosis can only be extremely doubtful. We operate, as a rule, earlier at present than formerly, only because we make up our minds to operate sooner. The possibility of early operation depends entirely upon early recognition of the tumor. Gastrostomy is little more than a method of producing euthanasia. Cases of carcinoma of the esophagus should be supported as long as possible by feeding through esophageal tubes or per rectum, and gastrostomy attempted only when the body weight begins to diminish to the danger point.

In cases which apparently present favorable conditions for operation, the prognosis is always doubtful, and interference should be advised only with a full understanding of this fact. The prospects of a cure are hardly 25 per cent., and of improvement not more than 50 per cent.

For every possible reason, cases which seem favorable should be brought to operation at the earliest possible moment.

THERAPEUTICS.

UNDER THE CHARGE OF

HORATIO C. WOOD, M.D., LL.D.,

AND

ARTHUR A. STEVENS, M.D.

Treatment of Cardio-Vascular Disease.

Rumpf (*Berliner klinische Wochenschrift*, March 29 and April 5, 1897) discusses the treatment of this affection. No attempt has been yet made in treatment to counteract the calcareous changes present in the coronary and other arteries of the body. Frequently a commencing cardiac insufficiency may be counteracted by rest, strict limitation of diet, with or without digitalis. There can be no doubt that a diet restricted to three-quarters up to one litre of milk per day may, along with other measures, produce the best results. This can, however, only be carried out for a short time, and the results are less favorable when two or three litres are allowed. The author has often found that milk suits some of these cases less well than a mixed diet. He calculates out the amount of lime and magnesia salts given when two to three litres of milk are administered. The corresponding amount of lime salts is not found in the stools, and thus they must pass into the blood. The deposit of lime salts may result from their presence there as well as from altered chemical processes. The amount of lime salts in the blood varies. The author gives a diet consisting of meat (250 grammes), and bread, fish, potatoes, and apples (each 100 grammes), and this contains a minimum of lime salts. Besides milk, cheese, eggs, cocoa, etc., are rich in these salts. Water may be used in place of milk, and the author recommends a palatable beverage containing, besides carbonic acid, sodic chloride and citrate. Lime salts are chiefly excreted by the bowel and not by the kidneys. The author discusses the means by which the excretion of lime salts may be increased. Copious diuresis has to be considered here. Digitalis has certain contraindications, and calomel is not always efficient. Diuretin is a valuable addition to our resources. The author relates investigations carried out in cases where it is shown that with a diet containing few lime salts a diminution of lime salts in the body may be effected. The excretion of lime salts is increased by the use of hydrochloric and lactic acids, and also by the use of organic sodic salts. The author has carried out treatment on these lines in nine cases. There was mostly an increased diuresis, the

favorable effect of which is very generally admitted. Further investigations are required, but it appears probable that the varying richness of the blood and other fluids of the body in lime salts is not a matter of indifference. If they promote coagulation they may thus exercise an unfavorable effect, especially when the vessels are calcareous. The deposit of lime salts in the coronary arteries is of great importance. Whether by a long-continued loss of lime salts to the body, calcareous deposits in the vessels may diminish, requires further investigation. The patients are often less well when the diuretics are omitted, even if the limited diet is continued. At any rate, by the use of sodic salts a greater amount of phosphate of lime can be brought into solution than without them. In some cases, as in those complicated by granular kidney, the treatment is without effect. The author advocates the new principle of introducing into the body only as much lime salts as are excreted in the urine and stools. The heart must be given as much rest as possible, but light and carefully regulated exercises often increase the power of the heart. The other therapeutic measures are also to be adopted.

Prevention of Pneumonia following Anesthesia.

Whitney (*Boston Medical and Surgical Journal*, September 23, 1897) speaks of the frequency with which pneumonia follows ether anesthesia. The infection, he thinks, takes place from the mouth to the lungs through the air-passages. The exudation shows numerous micro-organisms, especially the pneumococcus. He recommends a thorough aseptic cleansing of the mouth two or three times in the twelve hours preceding anesthesia. The nose also is to be douched, and the anesthetic cone sterilized.

Treatment of Intussusception.

Clubbe (*British Medical Journal*, November 6, 1897) reports fifteen cases of intussusception, of which eight recovered and seven died. In three cases the intussusception was reduced by injection of oil without operation. In this series there were twelve laparotomies with five recoveries. In one of the cases that recovered four inches of the small intestine were resected, and this in a child under twelve months. The author has previously reported seven laparotomies with four recoveries. Taking the operations in the two series of cases together, then, the figures are nineteen cases; nine recoveries and ten deaths.

He believes that treatment by rectal injection should not be given up. In a certain number of cases the intussusception can be reduced by this means, even when used a considerable time after the onset of the attack. Of three cases cured by injection, one had been ill thirty hours, one forty-eight hours, and another seven hours. In a fourth case laparotomy was performed after the oil injection had been used, and, as it was thought, unsuccessfully; but it was discovered that perfect reduction had occurred. The author concludes with the following remarks on rectal injection:

"The injections, if they are to be of any use, must be given intelligently. An anesthetic must be given, the buttocks must be raised, and warm olive oil injected by means of an ordinary enema-syringe. If the anus is held around the nozzle of the syringe, very considerable pressure can be exercised on the column of oil. Common sense must tell us how much pressure to put on and when to desist. The amount of pressure could be accurately measured by allow-

ing the oil to run in of its own weight from a special apparatus, but this is not always at hand. After apparently reducing the intussusception by injection be careful not to lose sight of the child for a few days, even though the symptoms disappear and it passes a natural motion. I think injections of warm oil should be given in all cases after the child is under the anesthetic, even in cases of long standing when we know that it is possible to complete the reduction by this means. My reasons are these: It always reduces the intussusception to a certain extent, and in the best and gentlest possible way; and in this way lessens the shock of the coming operation, because it lessens the manipulation of the intestines. It is especially useful in those cases in which we find the intussusception in the rectum; because if we do not use it we may find some difficulty in getting our fingers below the tumor to begin the squeezing process. After opening the abdomen in cases of long standing, where we find that the intussusception stops moving to gentle pressure, I think it would probably be better to resect at once. One can nearly always reduce these intussusceptions if we take time and use considerable pressure; but after this prolonged manipulation, which must add enormously to the shock, we probably find when the reduction is completed that the bowel is torn so much that we have no alternative but resection, which we now have to do under the worst possible conditions. I feel sure that in these bad cases we shall get better results by resecting directly we find that force must be used. I am strongly in favor of draining in all these cases by means of a small gauze drain surrounded by a piece of gutta-percha tissue placed just within the abdominal cavity; this can generally be removed in twenty-four hours."

Treatment of Pertussis.

Theodor (*Archiv für Kinderheilkunde*, Vol. xxiii, Nos. 4 and 5, 1897) believes that palliation is all that can be accomplished in this disease. Vaccination, recently revived by Pestalozza, he has employed in ten cases, and without the slightest result in any of them. The pocks formed regularly and underwent gradual desiccation, but the whooping-cough was not in the least affected. Since this experience with vaccination, the author says that he has gone back to his old plan of treatment. For children under a year old he employs antipyrin, for those between one year and two years old he uses bromoform, and for older children he prescribes the wearing of a mask wet with a 10- or 20-per-cent. solution of carbolic acid. These measures, he believes, lessen the number of paroxysms, although they do not shorten the course of the disease. Hygiene, he suggests, should take the first place in the treatment of whooping-cough. So long as there is any catarrh, he would not allow the child to go out of doors unless the weather was so fine that it was warmer and pleasanter in the open air than in the house. He attaches, however, great importance to pure air in the rooms and to warm liquid diet.

Active Treatment in Paretic Dementia.

Godding, superintendent of the Government Hospital for the Insane, Washington (*British Medical Journal*, November 13, 1897), reports encouraging results in the treatment of paretic dementia by cold wet packs, always accompanied by cold to the head in the form of an ice-bag or wet towel. The duration of the pack is from one to three hours. The pack is followed by massage and some-

times by a brief douche. This treatment need not interfere with special treatment, such as iodide or mercurial inunctions. Whatever may be the permanent effect, says the author, there is generally marked benefit, calming excitement, promoting sleep, removing suddenly occurring mental confusion and excitement of vascular origin. Of seven patients subjected to treatment, three died and seven are now living. Of the latter, two appear perfectly well at the present time; two are much improved; two are somewhat improved; and one shows no improvement.

Briefly the details of a cold wet pack, as used in this treatment, are as follows: Use as many blankets as are considered necessary to produce a good reaction in your patient, placing one blanket above another smoothly spread out upon the bed; over all place a linen sheet wet in cold water and lay the patient on that. In wrapping the sheet about him take care to separate adjacent parts, as arms and legs, from the body by folds of the sheet; then wrap in the blankets, tucking closely fold by fold. The patient's head should be wet before he lies in pack, and after he is comfortably bestowed in it a wet towel should be wrappped about his unless an ice-cap is deemed better. If patient is very feeble and temperature of the surface subnormal more blankets will be required, or perhaps hot bottles at feet. As a cardio-vascular tonic the effect of the pack is enhanced in suitable cases by a short fan douche, beginning with a temperature of 70° F. for five seconds and lowering temperature one degree each day, following this with friction to the reaction-point. Massage is usually given one-half hour after pack. In cases of active excitement the patient may be taken from the pack, rubbed or douched, and put directly back. This while the excitement lasts, which under this treatment is seldom beyond twenty-four hours. If pyrexia is present it should be relieved by cool bath or short packs, with light covering, before the pack, as above detailed, is given, otherwise the pyrexia is aggravated. Temperature should be taken twice a day, and rise promptly met by ice to the head. Bowels should be carefully attended to to avoid autointoxication.

Ichthyol in Tuberculosis.

Fraenkel (*La Médecine moderne*, and *Medical News*, October 30, 1897) extols the use of ichthyol in tuberculosis, having employed the remedy in some thirty cases. In incipient stages the cough disappears in a few days. If the lesions are more extensive it may continue for some weeks or even months. Expectorations become more liquid and less abundant. All the symptoms are much improved. Twenty to forty drops of a mixture of equal parts of ichthyol and water should be taken four times daily. A little peppermint may be added to disguise the taste. In spite of its disagreeable odor and taste, the remedy produces no unpleasant gastric symptoms.

The Incompatibility of Antipyrin and Sodium Salicylate (in Powder Form).

William J. Robinson, of New York (*New York Medical Journal*, October 30, 1897) has recently called attention to the fact that antipyrin and sodium salicylate cannot be dispensed together in powder form; immediately, or within a short time, liquefaction takes place, and when the powders reach the patient he is likely to find no powders at all, but only thoroughly-soaked pieces of

paper. Though for practical purposes it is immaterial whether the change is of a chemical or of a purely physical nature, it is his opinion that the liquefaction occurs in virtue of a true chemical reaction. Helbing, in his "Modern Materia Medica," says, "The reaction of sodium salicylate and antipyrin, sometimes stated to be the result of a chemical change, has been decided, by careful research, to be merely the result of deliquescence, the salicylate acting as a carrier of moisture to the more soluble antipyrin (spica)." To this statement the author is unable to agree. Sodium salicylate is permanent in the air,—*i.e.*, it does not attract moisture; nor is antipyrin *more* soluble. Rather the contrary. Antipyrin is soluble in one part of water, while sodium salicylate is soluble in nine-tenths part of water. Nor does sodium salicylate contain any water of crystallization which might be liberated during trituration and act as a solvent for the antipyrin (as is the case with many salts).

Orthoform.

Heinz and Einhorn (*Münchener medicinische Wochenschrift*, August 24, 1897) describe a new synthetic compound, to which they have given the name of orthoform. It appears as a white powder, free from odor and taste. It is slightly soluble in water, and its aqueous solution possesses anesthetic properties. It has no effect when applied to the unbroken skin, but acts as a lasting anesthetic when applied to mucous membranes, ulcers, and wounds. It is said to be absolutely free from toxic properties. In one case as much as fifty grammes was sprinkled on a wound within a week, thus proving its harmless nature. It has decided antiseptic properties. It has been used successfully as a dusting powder on wounds, burns, and painful ulcers of the larynx, and internally it has been useful in relieving the pain of gastric ulcer and gastric carcinoma. The dose is three to five grains, three or four times a day.

OBSTETRICS.

UNDER THE CHARGE OF

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ASSISTED BY

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Placenta Prævia the Result of Uterine Fibroid.

Maygrier (*Bulletin et Mémoire de la Société de Obstétrique et Gynécologie de Paris*, January 14, 1897) publishes full notes of a bad case of placenta prævia. The patient, in the eighth month of pregnancy, was brought into the hospital already exhausted by profuse hemorrhage. A dead child was extracted by version. The detachment of the placenta offered extraordinary difficulties. Maygrier was fairly puzzled by a soft mass, which he detected on introducing his hand into the uterine cavity. It was very resistant, notwithstanding its softness, and the process of separation of the intimately adherent border of

the placenta fatigued him so that the midwife had to conclude the process as far as was possible. In spite of subcutaneous injection of ether and intravenous injections of serum the woman died an hour and a half after delivery. The uterus was removed after death. A tumor was found occupying the posterior and left aspect of the lower segment of the uterus, nearly reaching the os. It measured six inches in its longest diameter, and was a pure fibroma, very soft, yet being made up of very resistant white fibres. The placenta, altered by disease, was closely incorporated with its lower surface. Thus was explained the fatal complication in a condition always perilous during parturition.

Menstruation in an Infant.

Montaris (*Indépendant Médical*, No. 35, 1896), of Mitylene, reports the case of an infant who was born on August 21, 1892, and menstruated on February 21, 1893. Her body was unusually developed, the hair of the head strong and long, the breasts large. The features were regular, and, as is not usual in such cases, the expression of the features was intelligent.

Supposed Precocious Menstruation.

Comby (*L'Union Médical*) found that ordinary vulvo-vaginitis was sometimes accompanied by distinct hemorrhages. In three cases of children of 2, 3, and 6 years of age, which had been mentioned as instances of precocious menstruation, he found that the blood came not from the uterus, nor from the vagina, but from vascular granulations about the meatus urinarius, which bled freely if touched. This condition was cured by weak injections of potassium permanganate and cauterization with a one in fifty solution of silver nitrate.

Uterus Bicornis Septus.

Frank Edge (*American Medical and Surgical Bulletin*, May 10, 1897) reports the case of a patient, aged 34 years, who consulted him in June, 1896, for metrorrhagia after abortion. She menstruated at 13, and was always regular up to the time of her marriage, three years previously. She had always suffered from dysmenorrhea. A living child was born nineteen months before. A midwife attended to the confinement, the labor presenting no special feature. She was extremely sick, however, during the whole of her pregnancy. Nine weeks previously she had an abortion at about the third month, since which time she had flowed profusely and almost continuously. Upon examination under anesthesia the uterus was found peculiar in form; bimanually were felt two bodies uniting at the cervix. By the speculum a septum was visible dividing the cervical canal into two parts; a sound could be readily passed into each. With one finger in the rectum it was possible to touch the fingers of the outer hand above the cervix and between the two bodies. The ovaries were found, one to each horn, and presented nothing striking. The curette removed loose flocculent tissue from the left larger side, and it is probable that this side had contained the abortion. The cervix was not lacerated. The cavities measured three and a half inches on the left, three and a quarter inches on the right.

Cesarean Section for Cancer of the Uterus.

Robert Sorel (*Archives provincial de Chirurgie*, May, 1897) thinks that although the range of usefulness of Cesarean section has recently been limited by the introduction of symphyseotomy, it still finds a clear indication when cancer of the uterus has rendered cervical dilatation impossible. The case reported was one in which pregnancy had arrived at the full term. The cancer was not one that could be operated upon. Labor had been going on for sixty hours without a trace of dilatation. Cesarean section was performed, and the infant was saved alive. The patient is still living, but the cancer is making steady although slow progress. Had Sorel seen the case in early pregnancy he would have counselled removal of the whole uterus; as it was, Cesarean section was preferable to total abdominal hysterectomy as being more rapid and less dangerous, and because the malignant disease had already invaded the vagina.

GYNECOLOGY.

UNDER THE CHARGE OF

CHARLES BINGHAM PENROSE, M.D.,

ASSISTED BY

H. D. BEYEA, M.D., and H. L. WILLIAMS, M.D.

Endometritis of Pregnancy and its Cause.

Scheunemann (*Centralblatt für Gynäkologie*, October 23, 1897), in discussing an article by Emanuel under the above title (*Zeitschrift für Geburtshülfe und Gynäkologie*, Band xxxvi, Heft 4), says,—

It has recently been frequently attempted—usually with negative results—to prove that micro-organisms are the cause of chronic endometritis. One is very apt, in accordance with the view of Veit, to refer back the endometritis of pregnancy to a chronic endometritis already existing before conception, and through this to bacterial origin. But Emanuel has been the first to make a positive demonstration of the presence of bacteria in the endometritis of pregnancy. The case in question is that of a woman who aborted three times in quick succession.

An examination of sections from the first and third abortions demonstrated the presence of numerous, intercellularly situated swarms of diplococci, which in both cases bore a striking resemblance to one another; whilst in the second abortion the bacteria demonstrated in the sections, as well as by cultures, were looked upon as the exciting cause of the attendant inflammation, and by this means of the bringing about of the abortion.

The examination of the ejected gestation-sac in the third abortion showed an exactly similar condition to that found in the previous miscarriage. The macroscopical appearance of the ovum was of an intense yellow color. A microscopic examination demonstrated in the decidua vera numerous foci of

small-celled infiltration with extensive hemorrhagic extravasation into the surrounding tissue; whilst in the decidua serotina, near the surface, these foci of small-celled infiltration showed necrotic areas in the middle, a sign of especially intense inflammation.

Eight weeks after the third abortion a curettement had to be performed upon the patient, on account of bleeding, and the pieces of tissue obtained were most carefully examined.

It was shown in this way that both in culture preparations and in cut sections micro-organisms were *not* now present, but, on the other hand, there was present in the mucous membrane the signs of chronic inflammation, not only in the glands but also in the interglandular tissue.

The demonstrated diplococci are looked upon, therefore, as the cause of the endometritis of pregnancy, and through this means, as the immediate cause of the abortions. His case demonstrates further that the endometritis of pregnancy, which, in confirmation of the opinion of Veit, had surely been present from the beginning of conception, passes on into a chronic endometritis.

Laceration Ectropion and Carcinoma of the Portio.

W. Fischel (*Wiener klinische Rundschau*, 1897, No. 9) presents the case of a woman, 40 years of age, on whom there developed a carcinoma of the portio, in the form of quite circumscribed, small nodules, two centimetres long by one centimetre in depth, having the macroscopic appearance of lacerative ectropion, and showing no crumbling tissue and no change in the surface level.

In 1883 Breisky had performed the Schroeder-Emmet operation on the woman, on account of lacerated cervix, with ectropion.

For the carcinoma of the portio a high amputation of the cervix was performed.

In regard to the opinion of Breisky that carcinoma of the portio very frequently arises from the bottom of lacerations with ectropion, and from the induration tissue which results from the operation performed for the purpose of preventing the development of carcinoma, the present case shows, on the one hand, that the operative removal of ectropion tissue cannot prevent the origin of carcinoma; and, on the other hand, that the morphological picture of the mentioned form of carcinoma can also arise without a laceration ectropion being present.

A Case of Extrauterine Pregnancy with Development of Fetus to Normal Size at Term: Maceration: Discharge through the Navel and Intestine: Laparotomy: Cure.

A. Twczewski (*Gaz. lakarska*, 1897, No. 9; *Centralblatt für Gynäkologie*, No. 35), under the above comprehensive title, describes a case that occurred in a primipara, 24 years old. The discharge of the fetus began four months after the woman had reached full term, attended with severe labor-pains, and sensations as of distinct movements of the child.

The gestation-sac, which had no connection whatever with the uterus or adnexa, was tamponed, and the wound left open.

Subsequent recovery was complicated by a later operation for fecal fistula.

PATHOLOGY.

UNDER THE CHARGE OF
JOHN GUITÉRAS, M.D.,
ASSISTED BY
DAVID RIESMAN, M.D.

Experimental Researches on the Relation of Nerve-Lesions to Changes in the Vessels.

Czyhlarz and Helbing (*Centralblatt für allgemeine Pathologie und pathologische Anatomie*, November 1, 1897) have made some interesting studies on this subject. Bervoets had found after section of the sciatic nerve the following changes in the arteries of the paralyzed extremity: (1) atrophy and degeneration of the smooth muscle-cells in the peripheral layers; (2) a progressive hypertrophy of the same cells in the central layers of the middle coat, on account of which the lumen was gradually diminished. These changes the author had connected with the lesion of the nerve. A. Fraenkel divided or resected the sciatic nerve in dogs and rabbits and examined parts of corresponding arteries in the two limbs. He found a marked hyperplasia of the three coats of the affected artery, and likewise of the companion veins. In all the animals the extremity, the sciatic nerve of which had been cut, was the seat of abrasions, ulceration, or mummification, which was more or less extensive in different animals. The authors in their own experiments divided the right sciatic nerve of seven rabbits, killed the animals after a variable period, and examined the posterior tibial arteries and veins of the healthy and the operated extremities. The results proved interesting. The arteries from the extremities which had been the seat of ulceration showed marked changes analogous to those found by Bervoets and Fraenkel, while in those in which ulceration had not taken place the arteries presented no changes of the coats, whence it follows that the vascular changes described by the aforesaid authors were not dependent on the nerve-lesion, but were a consequence of the ulcerative process. It is well known that in the neighborhood of ulcers endarteritic and endophlebitic processes are apt to take place. But it also appears that such changes can affect the more distant portions of the related vascular territory. Regarding the sequence of changes in the affected arteries, the authors are of the opinion that the process begins in the media, and consists in primary degenerative changes in the muscle-cells, which are followed by hyperplasia of the elastic elements of the middle coat.

Experimental Production of Hemorrhagic Infarction of the Lungs.

Orth (*Centralblatt für allgemeine Pathologie und pathologische Anatomie*, November 1, 1897) is of the opinion, as a result of experiments recently made in his laboratory, that disturbances in the pulmonary circulation lead to infarction, and that such a disturbance may, contrary to the view of Grawitz, be produced by embolic obstruction of the branches of the pulmonary artery, although this is probably not alone sufficient for the production of hemorrhagic infarction. Another factor is necessary, and this is to be found either in congestion of the

pulmonary circulation, or in the chemically or bacterially irritant character of the embolus. Two series of experiments were made by him. In the first he injected bland emboli into the pulmonary artery of dogs, in which he had produced a valvular heart-lesion. In the second he produced embolism with chemically irritant substances, such as particles of formol-gelatin containing salt or solution of chloride of iron, or with particles of paraffin, vaseline, or vasogene. He was able to produce with the chemically irritant emboli dark hemorrhagic foci, resembling the hemorrhagic infarctions in the human lung. The inflammatory changes of the lung which Grawitz held to be a cause of pulmonary infarction were not present in the experimental infarctions. In the second series of experiments—the injection of bland emboli into dogs with artificial valvular lesions—infarctions were also produced. The experiments, however, are not yet completed. In some instances a local edema served to obscure the infarction.

Concerning the Excretion of Micro-Organisms by the Active Mammary Glands.

Basch and Weleminsky (*Berliner klinische Wochenschrift*, November 8, 1897) have found that the milk of animals suffering from septicemic processes and having bacteria in the blood is sterile, unless the gland is the seat of hemorrhages or other local disease-conditions. Two patients suffering from puerperal septicemia from whose blood streptococci had been cultivated excreted milk free from streptococci.

The authors refer to the fact, which apparently contradicts their own observations, that about one-third of the cows suffering from pearl-disease, in the milk of which tubercle bacilli have been found, show no visible disease of the udder, but they suggest that in such a large organ as the udder a small diseased focus might readily escape observation.

The Micro-Organism of Acute Articular Rheumatism.

Triboulet, at the meeting of the Société médicale des Hôpitaux, of November 19, 1897 (*La Semaine Médicale*, November 24, 1897), reported that he was able to find the micro-organism described by Thiroloix in a fatal case of acute articular rheumatism complicated with endopericarditis. At the autopsy, which was made forty hours after death, both aërobic and anaërobic cultures were prepared. The pericardial fluid yielded in an anaërobic culture numerous colonies of staphylococci. In similar cultures from the blood of the vena cava, a fragment of heart-valve, and a segment of the spinal cord, there grew on sterilized milk a large bacillus. An injection of two cubic centimetres of such a culture into a guinea-pig caused its death in twenty-nine hours.

DERMATOLOGY.

UNDER THE CHARGE OF

LOUIS A. DUHRING, M.D.,

ASSISTED BY

M. B. HARTZELL, M.D.

Scleroderma en Plaque of Unusual Type.

Darier and Gastou (*Annales de Dermatologie et de Syphiligraphie*, No. 5, 1897) report the case of a young woman presenting upon the left cheek, the shoulder, and the left arm maculo-tuberculous lesions, a dozen in number, having an average size of a five-franc piece, more or less clearly limited, without any induration in the beginning but becoming sclerous after a time, with a color varying from a *café-au-lait* to a rose- or cherry-red. The lesions had lasted seven years. Histological examination, by Darier, of an excised portion of one of the indurated plaques showed that the epidermis and the several appendages of the skin were unaffected; there was no tumor properly so-called, but that the lesion consisted of a connective-tissue hyperplasia of the derma. Treatment by electrolysis was followed by marked improvement within a month, the plaque treated becoming softer, the border less clearly marked, and the color less pronounced.

A Peculiar Form of Multiple Infectious Gangrene of the Skin.

Waelsch (*Archiv für Dermatologie und Syphilis*, Band xxxix, Heft 2) reports a case of gangrene of the skin occurring in a man 38 years old, a tanner by occupation. The disease began with the formation of abscesses upon the abdomen, breast, arms, and thighs, which after a few days were transformed into ulcers. These ulcers, which were very numerous, were sharp-cut, round, or kidney-shaped, and from three to six centimetres in diameter. In pus obtained from the ulcers were great quantities of diplococci stainable by the Gram method, and scattered among these short rods which could not be stained by the Gram procedure. In pus obtained by aspiration from abscesses which had not yet opened these latter were found in almost pure culture. After three weeks' duration the disease terminated fatally. The autopsy disclosed the existence of intramuscular abscesses, pathological alterations of the lungs, and evidences of sepsis in the liver and spleen. Inoculations with cultures of the bacillus, obtained from unopened abscesses, practised upon guinea-pigs and mice, showed this micro-organism to be pathogenetic to a very high degree. As to the origin of the infection, the reporter believes that it was produced by a contaminated hypodermic syringe-needle, the patient being addicted to the use of morphine hypodermically, the first abscess appearing at the site of and shortly after an injection.

Epidermolysis Bullosa.

Beatty (*British Journal of Dermatology*, August, 1897) reports three new cases of this unusual and remarkable disease occurring in a man and two chil-

dren, members of one family. The man, aged 41, was subject to the formation of blisters after slight injuries from early childhood. These formed upon the elbows, hands, knees, and scalp; other parts of the body were free from blebs. At birth the skin from the knee to the ankle was peeled off. The nails on most of the fingers and toes were defective, in some instances being completely absent. Before an outbreak on the scalp the patient suffered from a feeling of depression. Washing the head intensified an attack. Of the children, the elder, a girl aged 2, showed nothing peculiar about the skin until she was two months old, when pea-sized blebs were observed upon the hand. Since that time a succession of blebs formed after slight injury upon elbows, knees, wrists, and hands. Other portions of the body have not been affected. The third case, a boy aged 18 months, was born with a bleb on the right thumb, and since then a succession of blebs has occurred, the regions affected being the same as in the sister. In addition to the blebs there were groups of milia over the phalangeal joints in all three cases. The report of these three cases is preceded by a *résumé* of those hitherto published.

Psoriasis Inveterata treated by Cacodylic Acid.

Danlos (*Annales de Dermatologie et de Syphiligraphie*, No. 5, 1897) reports a case of generalized psoriasis of several years duration, which had resisted other more usual forms of treatment, cured by the administration of cacodylic acid. The formula employed was as follows:

Neutralized cacodylic acid	2 grms. (50).
Rum	20 "
Syrup	20 "
Distilled water	60 "
Essence of peppermint	2 drops.

Of this mixture six teaspoonfuls a day were given. The drug was well tolerated, but had to be interrupted twice on account of abdominal pains and diarrhea. At the end of three months the eruption had completely disappeared.

Caraté.

Montoya y Florez, in a note to Dr. Sabouraud (*Annales de Dermatologie et de Syphiligraphie*, No. 5, 1897), calls attention to several forms of dermatomycosis occurring in Colombia which are known as *caraté*. This malady presents several varieties,—violet, bluish-violet, brick-red, and black. Although a white variety has been described, this is really an achromia due to regression of some one of the varieties spoken of above; the red form, however, does not produce destruction of the pigment like the others. The red caraté attacks almost exclusively the whites; rarely half-breeds are affected. It occurs in towns, is chronic in its course, and continues indefinitely. It consists of large, red, scaly plaques with festooned borders, affecting by preference the back of the hands and the tops of the feet, the nape of the neck, the face, and sometimes the whole of the body. Upon the palms of the hands and soles of the feet it causes painful fissures. It never attacks the beard nor the hairs. Violet caraté is a disease of the negroes, whites being attacked in but 3 per cent. This form of

the malady is found in the country, the mountains, and the mines. Like the red form, it is chronic and lasts indefinitely. It does not affect the general health, and is less disagreeable than the red variety. The plaques are smooth in the beginning with polycyclic contours, but after some years they become scaly and itching. The malady invariably attacks at first uncovered parts exposed to the sun and traumatism. Upon certain portions of the skin, as the elbows, the knees, the trochanters, and the shoulders, achromic plaques are seen. These plaques are found upon parts most exposed to traumatism and moisture, as the feet of workers in mines.

Cutaneous Tuberculosis markedly improved by Injections of Calomel.

Fournier (*Annales de Dermatologie et de Syphiligraphie*, No. 5, 1897), at the *séance* of May 20, 1897, of the Société Française de Dermatologie et de Syphiligraphe, presented a man, 52 years old, suffering from a typical cutaneous tuberculosis, which began at the age of 4. There were no evidences of syphilis hereditary or acquired. An injection of calomel was given, after which the lesion was notably improved; after two more injections the ulcerations cicatrized; but the cure was not complete, there being still some thickening of the tissues. Attention was also called to the case of a woman with tuberculous lupus of the face, formerly presented to the society, in which a cure followed the use of injections of calomel.

BOOK NOTICES.

Cutaneous Medicine. A Systematic Treatise on the Diseases of the Skin. By Louis A. Duhring, M.D., Professor of Diseases of the Skin in the University of Pennsylvania, etc. Part II. Philadelphia: J. B. Lippincott Company, 1898.

The first part of this work has been noticed already in the Magazine. Part II begins with a brief discussion of the more important systems of classification that have been proposed. That considered the best, from the point of view of practical use, has been devised by the author, and is a modification and elaboration of his former classification.

The first class embraces the "anemias," of which there are comparatively few examples, and which usually have general rather than special significance.

Class II comprises "hyperemias." Hyperemia of the skin is a much more common manifestation, and therefore receives more extended consideration.

Under Class III are considered "exsudationes" or inflammations. This is by far the largest and most important group of skin affections. Each disease is discussed in the following manner: First, the technical name is given, then all the usual synonyms; next follows a clear

but concise definition of the disease, then the symptoms are detailed; next, in turn, the etiology, the pathology, the diagnosis, and treatment. From the practical stand-point the subject of treatment is the most important. In this matter Dr. Duhring's work is particularly satisfactory. As an illustration, the general treatment of eczema occupies thirty-one pages, and the regional forms twenty-five more; and yet it would be difficult to indicate any portion that could be omitted without impairing the value of the article. While thoroughness seems to have been the dominant idea, the facts are stated in a direct and concise manner. Considerable attention has been devoted to pathology; and a large number of reproductions of microscopic preparations of various skin affections have been incorporated. The book is especially rich in the number and excellence of the half-tone reproductions of photographs of interesting and classical conditions.

Traumatic Injuries of the Brain and its Membranes. By Charles Phelps, M.D., Surgeon to Bellevue and St. Vincent's Hospitals, etc. New York: D. Appleton & Co., 1897.

This work, the author states in the preface, is designed to be a concise and systematic exposition of the injuries which the brain suffers from external violence. It is based upon an observation of 500 consecutive cases of recent occurrence.

The subject is introduced by a chapter on the preliminary considerations of cranial fracture. About fifty pages are devoted to the discussion of the pathology of the various lesions secondary to fracture of the cranium. Prominence has been given to the infective processes met with within the skull. In this connection the author has drawn largely from Macewen's "History of the Pyogenic Inflammations of the Brain and Spinal Cord."

In describing the symptomatology, the author discards the usual terms "concussion," "encephalitis," and "compression" as tending to confuse the subject. He says, "The intrinsic difficulty which has been encountered in the interpretation of symptoms resides in the usual complexity of lesions, and has been increased by their apparent identity in cases in which dissimilar pathic conditions have been found to exist. It is necessary at the outset to recognize the fact that, without exception, they result from demonstrable organic change." The symptoms are therefore discussed under four heads: (1) hemorrhages; (2) diffuse and limited contusions of the brain; (3) laceration of the brain; (4) secondary inflammations of the brain and arachnoid membrane, which are almost invariably pathogenic. From these different points of view the author analyzes the series of cases that he has observed.

Dr. Phelps believes that in by far the larger proportion of cases in which the issue is determined by treatment it is met in the initial stage, and by insuring restoration from primary shock, while at a later period, he says, the question of operation may require for its determination the exercise not only of the highest surgical discretion, but also of the nicest diagnostic discrimination.

A conservative attitude is taken in regard to operative interference in head injuries. The indications for surgical intervention are briefly summarized as follows: operate generally in depressed cranial fractures, frequently in comparatively uncomplicated epidural hemorrhages, and exceptionally in subdural lesions, whether of the brain or of the pio-arachnoid membrane. This advice, of course, is general, but each case is to be decided upon specific and tenable grounds.

Part II is devoted to pistol-shot wounds of the head. This is an experimental and clinical study, and should prove most instructive to surgeons and those interested in medico-legal questions.

Finally, the author adds brief histories of 300 cases of intracranial traumatisms. Of these the results of the post-mortem findings are given in 225 instances. These are classified as follows: fractures of the cranial base, fractures of the cranial base from pistol-shot wound, fractures confined to the cranial vertex, fractures confined to the cranial vertex from pistol-shot wound, and encephalic injuries without cranial fractures. This is a most instructive portion of the book, and teaches more than would volumes of theories.

Dr. Phelps's work has certainly aided in extending and systematizing our knowledge of traumatic intracranial lesions.

The publishers have done their work in a most satisfactory manner.

A Text-Book of Diseases of Women. By Charles B. Penrose, M.D., Ph.D., Professor of Gynecology in the University of Pennsylvania; Surgeon to the Gynécéan Hospital, Philadelphia. 529 pages. Philadelphia: W. B. Saunders, 925 Walnut Street, 1897.

This little volume, while hardly meriting the appellation of text-book, is an excellent exposition of the essential features of the gynecology of to-day. As the author claims, the book is especially written for the medical student, and presents the best teaching of modern gynecology untrammelled by antiquated theories or methods of treatment. In order to expedite teaching purposes all facts of anatomy, physiology, and pathology have been omitted. This is unfortunate, inasmuch as it detracts from the value of the book as a reference work for the gynecologist and scientific investigator. We also fail to find any bibliography, which should constitute an essential feature of the larger text-books. Aside from the points mentioned the subject-matter of the book is rich and very attractively presented, and the paper and type clear-cut and easy to the eye. Especially valuable are the chapters on tuberculosis of the uterus and tubes and tuberculous disease of the cervix, subjects which are usually but superficially touched upon by text-books on diseases of women, but which are now becoming recognized as of much more frequent occurrence than was formerly believed. The diseases and cysts of the ovaries are ably considered and the pathology of cysts well defined. Gonorrhea in women, which, like tuberculosis, has in the past been largely neglected, is here given a full chapter, and its dangers, sequelæ, and treatment fully discussed. The most modern and progressive methods

of technique for abdominal and other gynecologic operation is adopted, and the main points made clear by excellent illustrations. On the whole, the book is, as we have already indicated, most readable and excellent, and, with the one fault of too great condensation, constitutes a valuable work for the medical student and practical gynecologist.

The Normal and Pathological Circulation in the Central Nervous System. Original Studies. By William Browning, Ph.B., M.D. Philadelphia: J. B. Lippincott Company, 1897.

In this volume the author has collected a number of scattered papers, previously published, and dealing, for the most part, with affections directly or indirectly dependent upon a faulty circulation. The first six articles have to do with anatomical and experimental subjects; they are (1) an examination of the spinal efferents for the cerebro-spinal fluid; (2) the chemical identification of cerebro-spinal fluid; (3) the veins of the brain in the monkey; (4) on the remains of a foramen spheno-temporale in man; (5) the arrangement of the supra-cerebral veins in man; (6) on the experimental determination of the method of development of symmetrical brain-hemorrhages. The remaining papers are devoted to clinical and pathological topics, and include (7) a case of internal hydrocephalus due to disease in the wall of the straight sinus; (8) a case of internal hydrocephalus from compression of the venæ Galeni; (9) a case of traumatic cephalhydrocele; (10) lumbar puncture; (11) a consideration of obstructive hydrocephalus; (12) pseudo-bulbar paralysis; (13) a case of symmetrically situated double hemorrhage of the brain; (14) on double hemorrhages of the brain; (15) note on the occurrence of brain hemorrhage starting in a focus of softening; (16) cases of apoplexy following some time after accidents; (17) a case suggesting multiple sclerosis but due to cranial aneurism; (18) apoplexias of the brain. Importance of early treatment based on differential diagnosis of the several forms.

These papers are interesting and suggestive, but the *raison d'être* of their appearance in book form is not apparent.

Hysteria and certian allied Conditions, their Nature and Treatment, with Special Reference to the Application of the Rest-Cure, Massage, Electrotherapy, Hypnotism, etc. By George J. Preston, M.D. Illustrated. Philadelphia: P. Blakiston, Son & Co., 1897.

It has been many years since a volume devoted exclusively to the subject of hysteria has appeared in English. This is somewhat remarkable when we consider the frequency of the affection, its puzzling character, and difficult management. The author, therefore, needs no excuse for offering this work to the profession. While no new facts have been brought to light, the manifold symptoms of the disease are

clearly presented in a most systematic order. Throughout the discussion emphasis is given to the fact, not always grasped by the student, that hysteria is not a protean disorder, but a distinct entity, attended by constant and characteristic manifestations. We believe that not a few practitioners are still tainted with the old fallacy that the hysteric and malingerer are one and the same individual. The differential diagnosis between hysteria, on the one hand, and neurasthenia and hypochondria, on the other, has been carefully considered. The work is embellished with a number of diagrams, and six excellent drawings by Richer.

THE MEDICAL NEWS VISITING LIST FOR 1898. Weekly (dated, for 30 patients); monthly (undated, for 120 patients per month); perpetual (undated, for 30 patients weekly per year); and perpetual (undated, for 60 patients weekly per year). The first three styles contain 32 pages of data and 160 pages of blanks. The sixty-patient perpetual consists of 256 pages of blanks. Each style in one wallet-shaped book, with pocket, pencil, and rubber. Philadelphia and New York: Lea Brothers & Co.

The valuable features of this visiting list are so well known that the reviewer needs to do no more than call the attention of the profession to the appearance of a new edition. The present volume opens with thirty-two pages of printed data, including an alphabetical Table of Diseases with Approved Remedies, a Table of Doses, sections on Examination of Urine, Artificial Respiration, Incompatibles, Poisons and Antidotes, a Diagnostic Table of Eruptive Fevers, and a full-page plate showing at a glance the incisions for ligation of the various arteries. The *List* is issued in four styles, adapted to any system of records and any method of keeping professional accounts. It is durably and handsomely bound in the size of a wallet for the pocket. When desired a Ready Reference Thumb-Letter Index is furnished, which is peculiar to this *List*, and an economizer of time.

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FEBRUARY, 1898.

A GREAT MEDICAL REFORMER.[1]

By Arthur Van Harlingen, M.D.,

PHILADELPHIA.

The *Lancet* is not only one of the oldest but is also one of the best known medical journals, both to the physician and to the world at large. Most intelligent laymen know it by name, and in English fiction, if a medical man is found reading in his "surgery" it is invariably the *Lancet* which is the object of his perusal.

To know the reason of this phenomenal prominence of a journal whose pages at the present day show no marked superiority, as regards its medical contents, over many contemporaries we must go back to the origin of the *Lancet* and read the life of its founder and first editor.

Thomas Wakley was born in 1795, and attended medical lectures in London about the years 1815–16. The great teachers of the day were Astley Cooper, Abernethy, and others less known at the present day. Hospital appointments were largely matters of nepotism, favoritism, and even bribery.

It was a perfect struggle to get instruction, and "walking the hospitals," as it was called, was accompanied by countless vexations and impediments.

"At Westminster Hospital, for instance, the students were only allowed in the wards from ten to twelve in the morning; at St. George's the hours were from ten till two, but no one could enter the wards without the member of the staff whose day of attendance it might be, and the staff were terribly unpunctual; at Middlesex Hos-

[1] The Life and Times of Thomas Wakley, founder of the *Lancet*, member of Parliament for Finsbury, and Coroner for East Middlesex. By S. Squire Sprigge, M.B. (Cantab.), etc. Longmans, Green & Co., London, 1897.

pital the students were only allowed admission three times a week, and as all the surgeons made their rounds on the same day at the same time no student could see the practice of more than one of his so-called teachers."

"In those days students dissected and acted as dressers at the same time, an arrangement that might be calculated to impress the knowledge of pathological anatomy upon them, but could not fail to have been attended with some risk to the patients."

Instruction in anatomy was given in private schools. A student had to pay ten dollars or more for a part of a cadaver, and body-snatching became almost a fine art. The students were left to themselves, and for the most part led a shiftless, more or less immoral life. The picture of Bob Sawyer, as given by Dickens, was a true one at that time of the average medical student.

It was to correct the abuses under which he had suffered as a medical student that Thomas Wakley, while still a young practitioner, founded the *Lancet*.

Almost at the outset of his career as a practitioner a misfortune occurred to Wakley which would have overwhelmed an ordinary man. The account of it reads like a page from one of Conan Doyle's detective stories, and might well have been heard as a tradition by our *ci-devant confrère* in his student days. The newspaper account is substantially as follows:

One morning, about half-past one, a man knocked at the door of his house, and Mr. Wakley, who was still up and was engaged in applying some leeches to his temples, hastily bandaged his head and opened the door. A man, who appeared to be flurried, said that Mr. Wakley was to call at once on an old patient in the neighborhood. The fellow requesting a glass of cider, Mr. Wakley went to the cellar to procure it. During this time it is supposed that the villain admitted some accomplices.

On the doctor's return from the cellar he observed something rush towards him, and at the same time he received a tremendous blow on the head which knocked him down. He was then stabbed, kicked, and left unconscious.

A short time after he recovered partial consciousness, to find his house on fire, and with difficulty dragged himself out to fall fainting on the door-steps of a neighbor. His house was completely burned to the ground.

Wakley had some time before received threatening letters, and it is supposed that he was the victim of some political conspirators. A short time previously several men had been hanged for a conspiracy to murder, and a masked assistant to the executioner, standing upon

the scaffold, had decapitated the victims one by one and held the heads up before the crowd. The skill with which this had been done pointed to some one acquainted with anatomy, and a careless paragraph in a paper suggested some one living on the street where Wakley had his office. Hence the surviving conspirators conceived the idea that he was the man, and proceeded to wreak summary vengeance. It turned out afterwards that the masked assistant to the hangman was a well-known body snatcher.

The insurance company refused to pay the insurance money on Wakley's house and furniture, and intimated that he had set fire to his own premises. In addition, there were not wanting persons who professed to believe that he had taken part in the revolting performance upon the scaffold some months previously.

After a prolonged lawsuit, in which, it may be said, Wakley received his insurance money and was completely exonerated from all the charges made against his character; and also after a prolonged illness, the result of his injuries, the unfortunate young physician naturally found his practice dissipated to the four winds, and in fact had to begin the world over again.

About this time, however, fortunately for his future career, Wakley made the acquaintance of William Cobbett, and from him learned how to turn to pen and ink for the redress of any wrong. There can be no doubt that Cobbett's friendship and example counted for much in Wakley's resolution, so soon now to be taken, that he would set the medical profession aright by publishing wherein it was wrong. The soul of the reformer had always been in Wakley, and to set aright these things, the rampant nepotism, the too frequently exalted ignorance, and the pecuniary traffic in high medical positions generally prevalent, he determined to take the field with a weekly newspaper devoted to the interests of the medical profession.

The first number of the *Lancet* was issued on October 5, 1823. The preface was conceived with some ingenuity. Not a word was said in abuse of persons flourishing under a corrupt system. Their words as theorists and their acts as clinicians were to be made public; if they objected, it must be for interested reasons. But it was assumed that being the men of distinguished light and leading that they should be, they could have no motive for hiding their light under a bushel; while the publicity promised for them was not to satisfy any idle curiosity, but to benefit the medical profession by giving the rank and file an opportunity to remain in intellectual touch with their leaders.

It was proposed to publish reports of the metropolitan hospitals, lectures on medicine and surgery, and accounts of important cases which might occur in England or on the continent.

The last paragraph of the preface conveyed the real purpose of the new paper. The *Lancet* was devised to disseminate medical information primarily, and incidentally to make war upon the family intrigues and foolish nepotism that swayed the elections to lucrative posts in the metropolitan hospitals and medical corporations.

In the first number of the *Lancet* a surgical lecture by Sir Astley Cooper was reported. Four hundred men attended these lectures, each of whom had paid fees of fifteen dollars and upward, the greater part of which went to the lecturer. It may easily be imagined that the lecturers wished no reporting done which would diminish the value of these lectures.

On the other hand, every medical man or student, unable by circumstances to attend the classes of his leaders, rejoiced in the chance offered to him of acquiring familiarity with their methods and theories through the medium of print.

The meetings of the medical societies were reported at the length which their importance warranted, there was an editorial on some political subject, a chess column, and, we believe, some facetiæ!

But the *Lancet*, so different from its contemporaries, which were few in number and very ponderous, soon attracted subscribers and flourished rapidly so that the jokes, the purely political editorials, and finally the chess column were abandoned, and the entire journal was devoted to purely medical matters.

The astonishment and surprise of the big-wigs, who found their lectures reported and read in cold print by a large circle of the profession, was at first almost stunning. Astley Cooper, whose lectures were the finest of their kind, and who gained in solid reputation by such publicity, only objected that they were quoted in the daily press, and that he could not open a newspaper without seeing his name in large type. It is perhaps on account of this newspaper notoriety that Astley Cooper, like the *Lancet*, was a name known to the laity, so that most intelligent persons still recognize it as that of a famous English surgeon even to the present day.

But other lecturers did not appear to such advantage. Abernethy, who occupied the same commanding position as a physician as that held by Cooper among surgeons, was naturally somewhat annoyed to find such sentences as the following printed for posterity.

In the course of a lecture on furuncle, erysipelas, etc., Abernethy said, "*I'll be hanged* if erysipelas is not always a result of a disordered state of the digestive organs. . . . *Egad*, it is a travelling disease, and, as I say, the parts are disposed to swell. . . . If it be seated in an unimportant part, *in the name of G*— let it go on there. . . . 'O,' said the

dresser, 'it is a case of erysipelas, and he only came in last week.' *Good G*—! said I, is it possible?"

Naturally Abernethy tried to put a stop to the reporting of his lectures, but a lawsuit ended favorably to Wakley, and gave the *Lancet* a famous advertisement.

From reporting lectures Wakley went on to reporting operations. So long as these were performed in the privacy of the hospitals any little slips or even ignorant blunders on the part of the operator gained little or no notoriety.

Wakley, however, was determined that if hospital appointments were the result of scandalous nepotism or of bargain and sale, at least the incumbents should not be allowed to hide their lights under a bushel, but that their virtues or their deficiencies should be plainly manifested before the world.

These hospital reports (which, if we are not mistaken, are continued under the same title to the present day) were at first watched with apprehension by all concerned in the administration of the institutions.

It was said by those who objected to the publication of surgical cases and operations that no man can always command success; that if a surgeon fail from want of dexterity he suffers mortification enough, heaven knows! in the operating-room without being put to the cruel and demoniacal torture of seeing the failure blazoned forth to the public.

To this Wakley replied by begging his readers to imagine a case in which some simple operation in surgery had been performed in a bungling and disgraceful manner, so that the patient's life was endangered by, or actually sacrificed to, the operator's want of dexterity. If the case occurred in private practice it might be desirable to suppress the cause of failure out of regard to the feelings of relatives and friends of the deceased,—not out of tenderness for the ignorant operator.

On the other hand, Wakley said of the advocate of the supposed bungling surgeon, "Not a scintilla of compassion does the hole-and-corner advocate suffer to escape him for the victim of the surgeon's want of dexterity; all his sympathy is reserved for the ignorant operator."

Wakley did not waste much sympathy on the latter, and various items continued to appear in the *Lancet*, week after week, in which any want of skill, any neglect of the patient, or any improper conduct of the surgeon or the hospital attendants was mercilessly exposed and criticised.

It was not long before big game rewarded the relentless hunter

after abuses. Bransby Cooper, nephew of the great surgeon, and one of the most flagrant exemplars of the prevailing nepotism, fell into an awful blunder. He operated for stone in a perfectly healthy man and—without the use of an anesthetic be it remembered—consumed an hour in the unsuccessful efforts to extract the calculus.

Wakley's report insinuated that a wrong incision was made; that the operator lost his head, and attempted violently to effect a passage with his forceps when no incision had cleared the way, called for all forms of instruments, asked the assistance of his colleagues and even his dresser, complained in front of the patient, of course unnarcotized, of his utter inability to understand the cause of his terrible failure to extract the stone; and, finally, when at last the operation was over, attempted to explain the difficulties to the appalled assembly of surgeons and students while the conscious and dying patient lay still bound upon the operating-table. No more terrible picture of incompetency, of want of skill, and of want of heart could be imagined than the picture that was drawn.

Bransby Cooper had no alternative but to bring an action against Wakley. He did so, and Wakley defended himself with much skill. Cooper won his case, but the damages were assessed at five hundred dollars and costs, which, if the amount was intended as an estimate of the value of Cooper's reputation, placed this as low as Wakley could have desired. Moreover, the latter's expenses and the amount of the verdict were raised by popular subscription among the members of the medical profession.

The *Lancet* was now in a position of great influence and power. There were only three other journals of consequence published in England at the time (1823), the *Medical and Physical Journal*, the *Medico-Chirurgical Review*, and the *London Medical Repository*. The second of these only lasted until comparatively recent days. They all attacked Wakley, and the *Lancet* and Wakley retorted. Language was used on both sides which strongly resembled Billingsgate.

The *Medical Gazette* was started in 1827, by Brodie, Abernethy, and other hospital surgeons, in avowed hatred of, and strenuous opposition to, the policy of the *Lancet*.

The outward resemblance to the *Lancet* was close. "Some despicable imitations of us have arisen," said Wakley, "and *stunk* and become extinguished. . . . One or two are still *emitting a little fœtor*." The *Gazette*, some years later, combined with the *Medical Times*, but in subsequent years the bitter animosity between the journals ceased. At least we have perceived no sign of it in our day.

Wakley made a strong fight for the reform of the College of Surgeons and medical education and examination in connection there-

with, but the details are too extensive for the present notice. It may be said that, although not directly successful in changing the character of the college, his efforts gave the first impulse towards the reforms which have since taken place in medical education in England.

To pursue his career as a reformer Wakley entered Parliament. He desired to represent the interests of his profession there and to press for reform in medical politics. Among the first measures he introduced was one providing for medical instead of lay coroners. He likewise pressed successfully for a proper remuneration of medical witnesses.

The coroner's inquest in England, in the year 1827, had fallen from the important judicial procedure, which had originally been intended, had been universally degraded to a dreary farce, stage-managed by a foolish beadle, where the legal administration was ignominiously known as "crowner's quest law,"—a thing proverbially to be laughed at, and where the majesty of death evaporated with the fumes from the gin of the jury. The taint of the tavern parlor vitiated the evidence, ruined the discretion of the jurors, and detracted from the dignity of the coroner. Dickens here, as in the case of the medical student of the day, did no more than hold the mirror up to nature when he wrote the description of the inquest in "Bleak House."

In 1830, after the subject had been ventilated in the *Lancet* for some time, Wakley made public his intention of running for the office of coroner for East Middlesex, and about the same time he managed to have St. John Long, the famous charlatan, found guilty of manslaughter by a coroner's jury.

St. John Long was a rather illiterate fourth-rate artist, who had picked up some knowledge of medicine, or at least of medical terms, while executing anatomical drawings. His name has come down to us in association with an excellent liniment, for which, however, he claimed powers somewhat like those ascribed a few years ago to Koch's "tuberculin."

Long's liniment, he claimed, was not only curative but preventive and diagnostic. Placed upon the skin over a healthy organ no reaction occurred, but placed upon the skin over a tuberculous lung or a podagric joint rapid ulceration followed. This ulceration was so far, he alleged, Nature's process that it represented the healthy rejection by a tissue that desired to be sound of the mischievous elements previously present in its meshes.

Long became fashionable and made an almost incredible amount of money; in one year his income from his "practice" was $67,000!

His catastrophe came at last, however. He frightened a perfectly healthy girl into submitting to the application of the liniment and an irritating ointment until an enormous and unhealthy ulcer

formed upon her back, from the effect of which she died in exactly one fortnight.

The *Lancet* took up the case, an inquest was held, which Wakley attended as the representative of the friends and relatives of the deceased. St. John Long's fashionable friends stood by him, and Wakley's course was attributed to professional jealousy. Nevertheless, Wakley in this case as in others triumphed, and by his magnificent fighting power forced the case through, although with the usual suits for defamation of character coming from various opponents as side issues.

It is impossible not to admire this pugnacious battler for the rights and for the purity of the profession. Not only do we admire him for his high aims, but for the sound common sense displayed in his selection of the subjects for reform, and the pertinacity and skill with which he used all the means which knowledge of the strength and weakness of human nature put at his disposal.

It is too often the case that those who devote their time and strength to the reform of abuses, whether in the body politic or in the body medical, fail in success because of the lack of what may be called in the language of theology sanctified common sense.

All honor then to those who unite the necessary qualities for success with the high aims too seldom seen in the successful.

Wakley held his office of coroner for East Middlesex long, and used it well. Here, as in other cases, he met with opposition on the part of vested interests and with abuses of various kinds, and here his onward path was marked and followed by the *débris* of overthrown bumbledom and the uprooted weeds of pig-headed conservatism.

Quacks continued to receive no mercy in the *Lancet*, no matter by what respectable authorities upheld, and the exposure of animal magnetism involved controversies with Dr. Elliotson and other prominent men.

The *Lancet* "Analytical Sanitary Commission" investigated the adulterations of food, and was most successful in drawing public attention to this subject.

But space is wanting to give even a *résumé* of this long and active life, spent gloriously in the elevation of the profession and the good of mankind. Such lives cannot be too often or too forcibly set forth for the advantage of the young professional man. Too many false gods call him from the path of devotion to duty and the cultivation of a high ideal.

It is the contemplation of lives like Wakley's which aids the struggling physician to hold up his head, and to strive not only towards the goal of professional ambition, but also to endeavor himself to be of use to the profession and the world in his day and generation.

THE PRESCRIBING OF DIET IN PRIVATE PRACTICE.[1]

By Frederick A. Packard, M.D.,

PHILADELPHIA.

My object in bringing the subject before the section is twofold. In the first place, I am desirous of hearing from others the methods employed by them in order to profit by their experience in what I have found a rather difficult matter in practice, and, in the second place, to hear criticisms upon the table herewith presented in order that I may endeavor to perfect it.

No one will deny the importance of regulating the dietary in a vast majority of cases applying for treatment. This seems to me an especially important element in treatment among the class of private patients by whom we are consulted for the lesser ills of life,—indigestion, lithemia, hepatic torpor, etc. It is also in this class of cases that we meet with those who need to have exact directions, not only as to what classes of foods they may take, but in particular what articles they must avoid or take in moderation. Frequently such patients with provoking *naïveté* will say that they knew that they ought not to eat rich foods, but that they did not think that such a simple thing as sweet-breads would hurt them, even if stewed with a rich wine sauce, so to speak, putting the responsibility for their indiscretion upon the physician instead of honestly endeavoring to follow his directions. Probably for one diabetic patient that comes to the office of the medical practitioner there will be twenty or thirty cases suffering from one of the conditions mentioned above, and yet from the discussions one hears it would seem that when the word diet was mentioned but three things could be considered,—typhoid fever, diabetes mellitus, and gout.

One of the chief difficulties in ordering the diet in private practice comes at the outset, when the patient declares that everything that he most enjoys is forbidden, and frequently asks what there is left to be eaten. It has always seemed to me that we ought to be prepared to tell our patients what they can as well as what they cannot eat. Some of the diet-lists at present in use (notably those devised by Thomas) do give a list of permissible as well as of forbidden articles. A diet-list needs to be elastic, not only because individuals differ very markedly, although suffering from the same disease, but also because

[1] Read before the Section of General Medicine of the College of Physicians of Philadelphia, November 8, 1897.

the cases vary in severity and in the stages at which they are seen. Thus a dietary for diarrhea might be appropriate for one patient suffering from intestinal indigestion of gouty origin, and entirely inappropriate for a case of tuberculous enteritis. A case of gout (from the stand-point of diet) may vary from the chronic gouty to a man in the midst of his first seizure, or a diabetic may be found to hold his weight and pass a small quantity of sugar upon a diet that would be in no way suitable for a patient suffering from the same disease, but to a different degree. I believe, therefore, that we cannot practically use a set of diet-sheets classified by diseases to be handed out unaltered with our prescriptions so soon as our diagnosis is made. It is impossible to think at once of all or even many of the articles of diet that are allowable or to be avoided. Even if they could be enumerated at once the patient would probably soon forget them. To write out a list of articles to be avoided is also a matter requiring some expenditure of time, usually when such time can with difficulty be taken for the purpose.

The sheet presented herewith [1] is, as can be seen, simply a list comprising almost all of the ordinary articles of diet, with three parallel columns in which can be made a mark indicating whether the various articles must be avoided, can be taken in moderation, or eaten freely.

In numerous trials I have found that the filling out of such a list occupies from three to five minutes. That there are deficiencies in the list I fully realize. It is large and rather clumsy. This I think cannot be avoided. A close grouping would take away some of the advantages which, in my opinion, this list presents. Certain particulars might be added, as, for instance, the different varieties of fish that should be taken or avoided. In regard to this point I may say that I at first had a formidable array of names of various fish on the list, but concluded that in any one case probably no more than two or three varieties need be forbidden, and that these could readily be written in the blank lines. The term "in moderation" is very vague, but suits as well as any other term, and in the space left for special directions at the foot of the page the limits may be more definitely stated, as, for instance, "red meat but once daily," or "coffee at break-

[1] A reproduction of the list would serve no useful purpose. It consists of a sheet measuring eleven by eight and a half inches, on which are enumerated in the three columns the various soups, fish, shell-fish, meats, salads, breads, pastries and puddings, vegetables, fruits, and beverages, with the chief methods of preparation, and with a few blank lines under each subdivision for the addition of other articles. To the right of each column are perpendicular rulings, making spaces in which can be indicated whether the individual articles are to be avoided, taken in moderation, or eaten freely. At the foot of the sheet is a space for general and special instructions.

fast only," etc. In the same place can be given directions regarding the quantity of water to be taken daily and with meals.

I am well aware that what one man finds convenient does not at all suit another in practice; and I merely offer this as a table which I have found a convenient and satisfactory aid in performing one of the most important duties of the physician.

DISCUSSION.

Dr. Packard: I sympathize very sincerely with the dog who found that he was being wagged by his own tail. I feel that the remarks I made have been of some value, inasmuch as they have brought out a most interesting discussion. Two things I wish to say: In the first place, my first idea in getting up this table was to try to obtain something which would carry out exactly the idea expressed by Dr. Da Costa and several others, that each individual must be a law unto himself, and that we could not have a diet list that would fit every disease. That is what led me to give up the various published tables, which are about as complete as they can be made, notably the Thomas diet-list. They are hard and fast, it is difficult to alter them, and we must alter them for each patient. Then, too, some of the points spoken of I have already thought of, as being too elaborate to attempt to incorporate them with the already rather clumsy sheet; others, I think, can be very conveniently adopted into this table. My chief aim has been to devise some method of *suggesting* permissible articles, of which the patient might otherwise not think, as well as of excluding, improper articles.

Paralysis of the Intestines after Abdominal Operations.

Engstrom (*Centralblatt für Gynäkologie*, September 11, 1897) says that paralysis of the intestines which follows laparotomy, sometimes producing death, does not always result from sepsis. He cites four cases in which death followed operation after fifty-seven hours, seven, eight, and ten days respectively. In these four cases there was not the least trace of peritonitis, which there would certainly have been if death had been due to sepsis after such an interval of time. Moreover, in one case the contents of the abdominal cavity were examined bacteriologically one hour after death, and were found to be absolutely sterile. According to the author, a careful stimulation and nutrition of the patient, if necessary, per rectum, is a most important factor in preserving life.—*Medical News.*

THE SELECTION OF FOOD FOR THE SICK.[1]

By James Tyson, M.D.,

PHILADELPHIA,

Professor of Clinical Medicine, University of Pennsylvania.

As Dr. Packard has said, the importance of diet in connection with the treatment of disease is generally acknowledged, and there has perhaps been no time in which it has not received more or less consideration. This consideration, from having been very crude at first, has, it seems to me, been almost over-elaborated. The most recent text-book on "Diseases of the Stomach," that of Hammeter, which is a monumental work and storehouse of valuable information as to stomach pathology and therapeutics, contains a large number of tables of diet from different sources, including Ewald, Boas, Wogele, and others. One becomes confused by the number and variety, and discouraged by the length of time it takes to select the one which is particularly applicable to the case under consideration.

The selection of diet, or rather the conditions upon which the diet is to be selected for a patient, depends upon several circumstances: *first* of all is the chemical composition of the food; *second*, its physical composition as contrasted with its chemical; *third*, the mode of preparation; *fourth*, the experience of both physician and patient. It seems to me the matter is rendered somewhat easier if looked at from such a stand-point as this.

First, chemical composition of the food. We know that food is divided according to its composition into proteids, carbohydrates, hydrocarbons, and minerals, including water, and that a certain proportion of these four sets of elements is contained in almost every sort of food, in animal and vegetable food as well. Meats, of course, contain more proteid substances, while the vegetables, represented by rice, potato, and the like, contain more carbohydrates. The hydrocarbon are represented by the fats. The first of these, it is well known, are intended more particularly for tissue-making, and in our selection of food for the sick this consideration would be met by this sort of food. On the other hand, the carbohydrates and hydrocarbons are force-producers, and for the working man food of this kind is desirable; while in view of the fact that a certain proportion of fat is not needed at once is stored up, which makes them a desirable food

[1] Remarks made in the discussion on Dr. Packard's paper at the Section of General Medicine of the College of Physicians of Philadelphia, November 8, 1897.

for those who need to be fattened. It is not necessary to specify further the different kinds of food which are included in this group.

Second are to be considered the physical properties of food. We know that these vary greatly. The vegetable foods are more indigestible in one sense,—that is, they leave more refuse matter,—which is at once an advantage and disadvantage, according to the conditions under which it is met. Thus, for persons disposed to constipation we know quite well that the vegetable foods are indicated, for the reason that there is always a large residue left unabsorbed in the bowel, which acts more or less as an irritant, as which it becomes useful in constipation. On the other hand, in cases of diarrhea, in cases of irritation of the bowels, this kind of food is most unsuitable, the conditions calling for those foods which have the least amount of waste, and which are therefore bland and unirritating.

Third, we have the mode of preparation of food. This, of course, has a great deal to do with its availability in sickness as well as in health. There are really very few foods which are best taken in the raw state. Of the animal foods, the oyster is, perhaps, the only one, certainly the only one which occurs to me. It is very well known that the nearer the oyster is to being raw, the more easily digested it is; the more it is cooked, the tougher it becomes, and therefore more difficult to digest. The reason of this is evident, since the oyster contains at once a sugar and a diastasic ferment, the union of which two, in the raw state, is brought about by the simple eating of the oyster, which is thus made, as it were, to digest itself. On the other hand, if an oyster is cooked, this self-digestive power is lost. Of vegetables, too, it is well recognized that except fruits none are fit to be taken raw, and that cooking is necessary to make them in any way digestible. This is particularly true of the starches, which are thus rendered more vulnerable to the digestive diastasic ferments. As to fruits, though there are many which may be eaten raw, it is true of them also that they become more easily assimilated when cooked. This is true of peaches, pears, apples, berries, and the like. Under the mode of preparation is included an infinite variety of methods of improving the flavor and digestibility of foods which belong to the province of the cook, which cannot be profitably dealt with here.

Fourth, experience is after all the most valuable practical criterion of the propriety of a food. First, the patient's own experience; secondly, the physician's experience. The first direction which I am in the habit of giving to patients in regard to eating is this one: Whatever does not agree with you, that do not eat. It is evident that this will eliminate at once a very large list of foods, and relieves one of a considerable loss of time in the selection or elimination of articles

of food. Then comes the physician's experience. This, I am sorry to say, is often a good deal a matter of fancy with a physician. If one, for instance, compares the dietary recommended by different physicians for a given condition, he will often find surprising differences. A part of it may be a matter of judgment and experience, but a good deal is the result of fancy. Take two sample articles, such as coffee and toast. I am myself exceedingly fond of coffee; it does not hurt me; it is rather difficult for me to see at first why it should hurt any one else, and I am therefore, perhaps, a little more free in indulging patients with coffee than some others who find in their personal experience that it is harmful. Dry toast is a positive poison to some persons, producing in them very promptly acidity and flatulence, while to others it is an enjoyable and harmless food. Experience carries us much further, and it is very difficult to get at the sum of the experiences of different persons. Some facts are, however, generally acknowledged, as for example, that liquid foods are alone allowable in fever; that carbohydrates are unsuitable in diabetes and proteids in gout. It is true, there are not very many diseases which have their diet so definitely specialized as fever, gout, and diabetes. In the matter of gout, again, there is a very wide difference of opinion by different authorities. The French school particularly, and they are followed by many in this country, forbid in the treatment of gout very positively the carbohydrates. Chemically, the carbohydrates are not at all contraindicated in gout, at least, this is so if uric acid is the *fons et origo mali* of this disease, since there is no nitrogen in the carbohydrates. In my own practice I do not forbid sugars *per se*. If by their fermentation they produce acids, this is, of course, a reason for not using them, since the acids thus generated go to neutralize the alkalies which otherwise keep the uric acid in solution. If sugars and vegetable acids act in the same way, they are also contraindicated.

In further illustration of idiosyncrasy I might allude to two cases of gout, one of which could drink a pint of lemonade with perfect comfort, and another could not touch lemonade without bringing on an attack of gout. The reverse was true of strawberries. This only goes to show, what is proven in so many different ways in our contact with disease, that the individual as much as the disease requires to be studied and treated.

While I regard Dr. Packard's table as admirable, I think there is often a saving of time to have a printed diet-slip for a few of the conditions which we meet in which a limited dietary is required. I have three different diet-tables which I give occasionally to patients, one including food and drink for diabetes mellitus, another for gouty and lithemic cases, and another for oxaluric cases. For other conditions,

I specify the articles of diet prohibited or allowed, and it will be a great saving of time to have a full table like that of Dr. Packard's to draw from.

TWO CASES OF DEATH WITHOUT DISCOVERABLE CAUSE.[1]

By M. Howard Fussell, M.D.,

PHILADELPHIA,

Instructor in Clinical Medicine, University of Pennsylvania.

The two cases here detailed both ended fatally. They were of unusual interest both during life and post mortem. During life they gave no symptoms or signs of anything that could not be accounted for on the grounds of ordinary indigestion, yet they both grew progressively weaker and weaker, and finally died without a diagnosis being made. Post mortem they gave as little idea of the real cause of death as the symptoms had of the disease during life.

Case I.—Parke S., aged 48 years; married. Parents dead—father of pneumonia, mother of Bright's disease. Two living sisters. Three children living; three died in infancy of gastro-intestinal trouble. Habits good; never had syphilis. Had rheumatism. Twenty-one years ago he had pulmonary hemorrhage followed by much wasting. He entirely recovered. Had cystitis and gastro-intestinal disturbances. Any indiscretion of diet always brought on an attack of indigestion.

About three years ago he began to get attacks of indigestion accompanied by abdominal pain. Gradually these attacks increased in frequency and severity until he could eat nothing but milk on account of pain in his abdomen. In the past three years he lost sixty pounds of flesh. No cough except when he catches cold. No palpitation of heart or dyspnea except when very weak; hemorrhoids very badly; bowels always constipated; never jaundiced; urine normal, specific gravity 1020; no albumin; no casts. Heart and lungs normal. Stomach not dilated, as proven by percussion both of empty and inflated organ. Blood contained 60 per cent. of hemoglobin. No change in corpuscles.

This patient had gone the round of doctors. Diagnoses of all sorts had been made, including cancer of stomach, cirrhosis of liver, and atrophy of mucous membrane of stomach. When he came under

[1] Read before the Section of General Medicine of the College of Physicians of Philadelphia, December 13, 1897.

my care he was worn to a skeleton. His face was pinched and anxious. He had a morbid desire for defecation, and unless he had two or three bowel movements a day complained bitterly. Eructation of monstrous quantities of flatus. Voluntary eructations. On swallowing anything whatever he complained bitterly of pain in the lower part of the abdomen, saying his food went to a certain point and then stopped. When he came under my care he was taking not more than sixteen fluid ounces of whey in twenty-four hours, and had been taking nothing else, and no more of that for at least two weeks. He never improved, but suddenly collapsed, and died unconscious in twenty-four hours.

Post Mortem.—Old pleuritic adhesions at bases of both lungs. Hypostatic congestion of lungs. Lungs otherwise normal. Heart small. Neither cavity dilated. Walls not hypertrophied. Valves normal. Appendix vermiformis exceedingly long and lies in the true pelvis. Mesenteric glands considerably enlarged. Great omentum perfectly normal and curled up over stomach. The pelvis is filled with an exceedingly large sigmoid flexure. The folds of this sigmoid flexure are bound together with adhesions. There is no stricture in any portion of the gut, and the bowel is not dilated. The spleen is of normal size. It is the seat of an old perisplenitis. Duodenum is normal and contains a small amount of chyme. Stomach normal in appearance. No thickening or ulceration in any part of its walls. It contains a thin, brown, watery fluid without any trace of blood. Liver pale but normal. Kidneys both normal.

Microscopic examination of the stomach and duodenum showed complete necrosis of mucous membrane; this was so general and complete that it must certainly be post mortem.

Case II.—Mrs. H., aged 32 years. I attended this patient in two confinements, and was the family physician for ten years. On my first acquaintance with her she was a normal, healthy, robust woman. Both labors were without any unusual occurrences.

About five years ago—unfortunately I have no note of this—the patient was seized with excruciating headache, unaccompanied by any physical sign, and no other symptom except vomiting. Every sort of treatment was applied without any relief, when the patient suddenly became better. The attending circumstances were so peculiar that I was convinced this was an attack of hysteria. Her health continued fair until about eighteen months ago, when I was called to see her for "faint attacks." She would get attacks of extreme vertigo and faintness, accompanied by nausea. I examined her carefully: her urine was normal; blood contained 60 per cent. of hemoglobin. Heart extremely weak, but regular and otherwise normal.

The woman very rapidly lost flesh, being unable to eat, had much flatulence and nausea.

On May 29, 1897, the following note was made: Skin extremely dark, especially on face and hands; pulse feeble; no murmurs in heart or vessels; lungs normal; abdomen normal; blood entirely negative. Complains of a peculiar *gnawing* in stomach.

Up to this time I had looked upon the case as one of an hysterical character without any especial interest. Her symptoms were so unusual and would become suddenly so much better that I felt there was certainly no serious lesion. On this date the following note was made: Physical examination; woman in bed; all organs absolutely negative, except that the heart's action is very weak. The color of hands and face is almost bronzed and looks like sunburn.

June 24.—Had a weak spell, accompanied by vomiting last night. The more I see of her the more I believe it is hysteria.

June 29.—Feels much better; looks well; pulse fairly strong; some belching.

At this time the patient went to the sea-shore, and returned in miserable condition while I was away on my vacation.

On September 14, I found her in bed, vomiting, with a pulse scarcely perceptible. Her blood was examined and found to contain 90 per cent. of hemoglobin. Red and white cells both normal. Her urine was repeatedly examined and found negative.

On September 23, pulse still feeble; faints when she gets up.

October 1.—A sudden attack of vomiting and diarrhea without cause, accompanied by an extremely faint condition; almost pulseless. Under strychnine hypodermically she somewhat rallied, but died suddenly the next afternoon.

Post Mortem.—Both lungs crepitant throughout; no fluid in pericardial sac. The heart is extremely small, the left cavity empty, the right cavity filled with partially congealed blood. The entire aorta is small, barely admitting the index-finger. Heart weighs barely one-fourth pound. There is apparently no disease of the muscle, and the valves are all normal. The lungs are normal. There is no apparent disease of the peritoneum. Liver is normal; spleen is normal. Right kidney and right suprarenal capsule normal. Left kidney and left suprarenal capsule normal. Pancreas normal. The mesenteric glands are somewhat enlarged. The appendix is normal in position and appearance. The skull cap is unusually thick, about one-fourth inch. Nothing abnormal about the longitudinal sinus. No abnormal bulging of meninges. Dura mater normal. No abnormal appearance about the exterior part of brain. Nothing abnormal found on section.

Both of these cases during life gave symptoms of gastric disturbance without any physical signs.

In the first case there was an absence of hydrochloric acid. In the second case the stomach contents were unfortunately not examined.

The post mortems in both cases were barren of results, except in Case I there was so much necrosis of the stomach wall that I think it certainly must be post mortem. Curiously, they both had extremely small hearts; the smallest I am sure I have ever seen in adults. This condition, while it might perhaps have hastened a fatal result, cannot certainly be viewed as in any sense causing death. Both cases had progressive loss of flesh; they were both hysterical individuals.

Both cases had enlarged mesenteric glands, thus pointing to the intestinal track as a possible source of infection.

No cause of death is apparent to me unless, indeed, one can suppose that the first case was truly one of starvation, due to the absolute inability to take food on account of pain, which pain could not be accounted for post mortem unless it arose in the large sigmoid flexure.

Case II might possibly be due to autointoxication; the appetite was always good; but, indeed, this cause seems to me begging the question. The reason of my presenting these cases to you is, if possible, to have some discussion as to their cause.

Results of Ligature of the Subclavian Artery during One Hundred Years.

Michailow (*Centralblatt für Chirurgie*, September 18, 1897) has made a study of 557 cases of aneurism treated by ligature of the subclavian artery, either alone or in conjunction with ligature of the carotid artery. Something more than half of these operations were done before the days of antiseptic surgery.

Of seventy cases of ligature of the subclavian and the carotid arteries during the same period, forty-five were cured or improved, while twenty-five were not improved or died. In eighteen instances the subclavian and carotid were tied at different times. Of these patients, fifteen were improved and three not improved. Michailow says that the ligation of the first portion of the subclavian is no longer as hopeless an operation as it formerly was, and the results now obtained by ligature of the third and fourth portions of this vessel are far better than they once were.—*Medical News.*

ACCURATE MEASUREMENT FOR SCOLIOSIS.[1]

By James K. Young, M.D.,

PHILADELPHIA,

Professor of Orthopedic Surgery, Philadelphia Polyclinic; Clinical Professor of Orthopedic Surgery, Woman's Medical College of Pennsylvania; Instructor in Orthopedic Surgery, University of Pennsylvania; Assistant Orthopedic Surgeon, Hospital of the University of Pennsylvania; Surgeon to the Hospital for Crippled Children.

In order to observe the course of the deformity in scoliosis, and the influence of treatment, scientific methods of measurements must be employed.

Fig. 1.—Tracing taken by improved trolley delineator.

Many methods have been devised to measure and record the amount of deviation of the spinous processes in scoliosis, and the amount or degree of the rotation of the bodies of the vertebra. These methods include at the present time upward of thirty-three different

[1] Read before the Philadelphia County Medical Society, December 8, 1897.

appliances, all of which are mentioned in the appended table. These include from the simplest free-hand drawing to the most elaborate and precise mathematical instruments.

The taking of plaster casts of the body is tedious and cumbersome. The camera obscura reproduces only a portion of the deformity, and photographic reproductions are variable, for obvious reasons, so that mechanical devices offer the best methods of illustrating the deviations.

The methods which I have employed until recently are the lead measuring strip, the cyrtometer, free-hand drawing, photography, McLaren's measurements, Weigel's trolley machine, and Beely's scoliosometer. Of these the cyrtometer is simple and reliable, and Beely's scoliosometer is satisfactory, but could be improved by attaching it

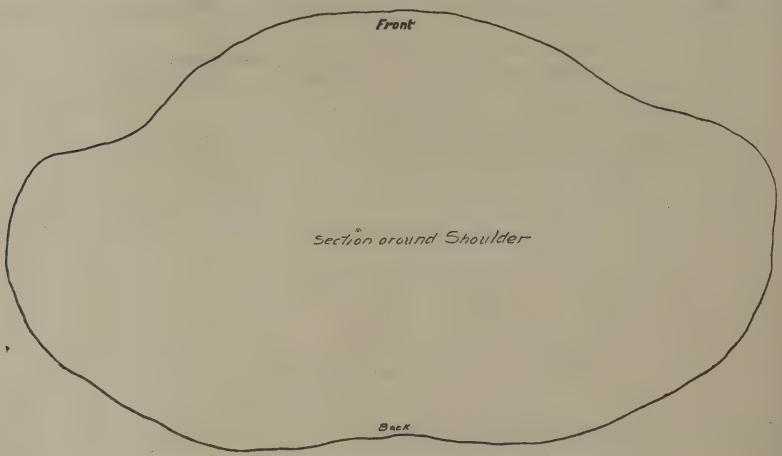
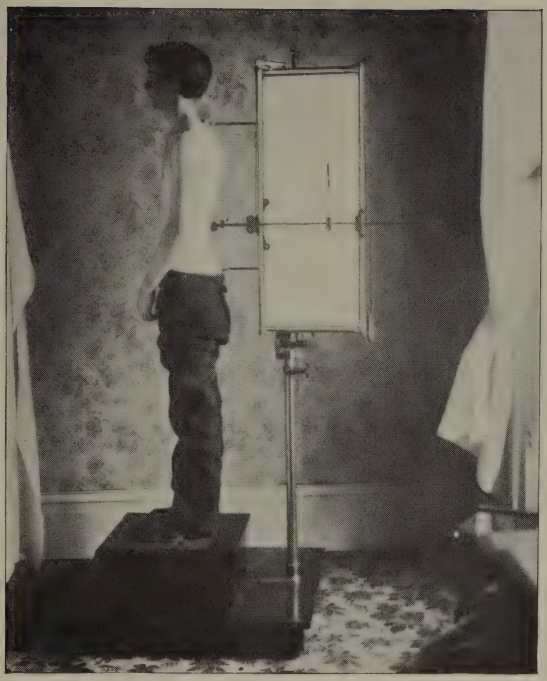


FIG. 2.—Tracing taken by improved trolley delineator.

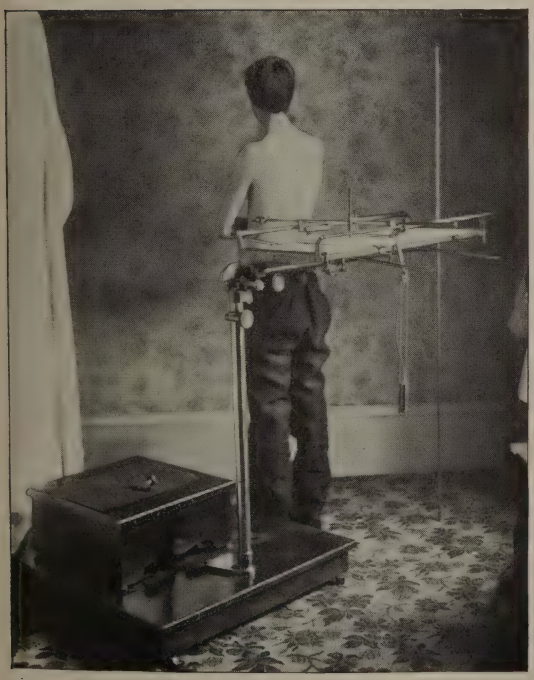
to a table. The methods which I am using at the present time are Sargent's anthropometrical measurements, photography through a screen, Bradford's scoliosometer, and the improved trolley delineator and rod scoliosometer, which Mr. Thomas Elkinton has kindly placed at my disposal.

(1) *Sargent's Charts.*—The advantages of this system of measurements are that they give not only the average measurements for the given age and weight of the individual, but the two sides of the body may be compared, and any defect or unilateral development may be readily detected.

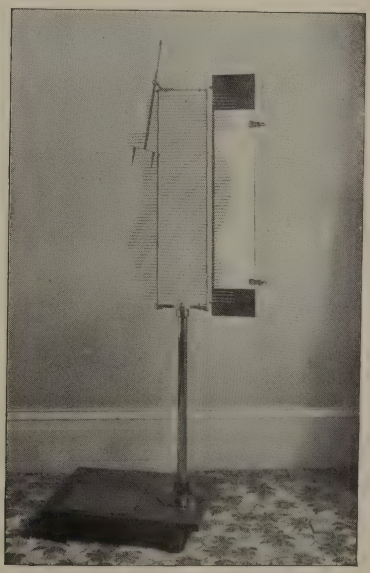
(2) *Photography through a Screen.*—This method is not original, having been employed in Boston, but the idea of photographing, first, lines upon sensitized paper, and, second, photographing the patient upon the same paper, was independently devised by Dr. Joseph M.



Improved trolley delineator (Elkinton), vertical section.



Improved trolley delineator (Elkinton), horizontal section.



Rod scoliosometer (Elkinton).

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Spellissy, one of the assistants at the hospital of the University of Pennsylvania. This method, however, requires more time than the simpler method of photographing directly through a screen made with threads. Photography of this kind requires that the position of the stand, screen, and patient remain unchanged, and each subsequent picture taken in the same manner. I have rendered the screen more useful by indicating the central cross section by a knot or two oblique threads. This point being placed exactly opposite the sixth dorsal vertebra, or on a corresponding point of the front of the body, to be located with the spirit level.

(3) *Bradford's Scoliosometer.*—This instrument[1] is the most accurate device for measuring for the degree of the deformity due to rota-

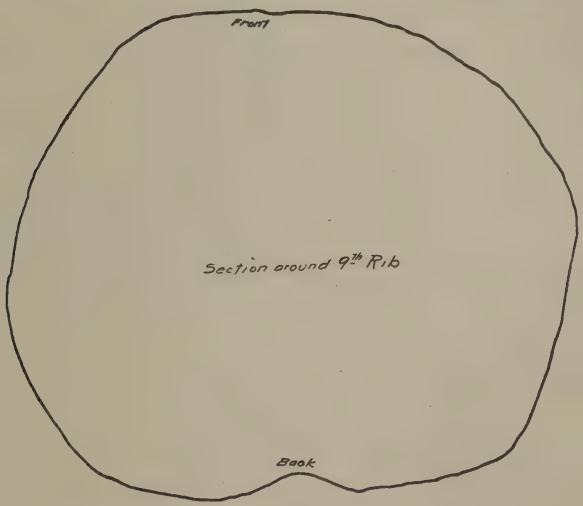

FIG. 3.—Tracing taken by improved trolley delineator.

tion of the bodies of the vertebra. It consists of two arms, a scale, and a spirit level. It is placed on the body with the two arms together, and the rod containing the spirit level is elevated until the horizontal is reached, when the degree may be read off.

(4) *The Improved Trolley Delineator.*—This is an improvement of the Weigel machine, and is so arranged that outlines may be taken in the vertical and horizontal planes. The paper is on a continuous roll, and the tracing may be taken either with a wheel or a point. In either case the personal element enters into the taking of outlines.

(5) *Rod Scoliosometer.*—This method is not unlike the scoliosometer of Beely, but it has one advantage, in that it is attached to an

[1] Made for me by Dr. Howard Reed, assistant in the Hospital of the University of Pennsylvania.

upright. Two points upon the spine, the seventh cervical vertebra and the top of the coccyx, are fixed against two rods of the machine, against which the patient leans. The rods are pushed in singly and marked upon the chart. Any deviation is indicated upon the chart, which has square tracings upon it. The personal element also enters into this method.

TABLE OF SCOLIOSOMETRY.

I. Pliable reproduction.	(1) Plaster cast. (2) Model bandage (Beely).	
II. Perspective drawing.	(1) Free hand drawing. (2) Photography.	
III. Measuring.	(1) Simple measuring of the body.	Measuring band. Calipers. Spirit level.
	(2) Outside measuring of the body.	Pliable metal band. Scoliosometer (Heineke). Scoliosometer (Mikulicz). Simple co-ordination apparatus (Weil). Measuring apparatus (Bigg). Disastropometrie (Roberts). Scoliosometer { Zander. / Bradford.
IV. Profile drawing.	(1) General surface measuring.	Cyrtometer. Lead strip.
	(2) Special surface measuring.	Tin strip (Roth). Rod cyrtometer { Beely. / Elkinton. Glass table (Bührings). Scoliosometer (Grameko). Tachygraph . { Rausch. / Weigel's. Camera obscura (Schildbach). Notograph . . { Virchow. / Elkinton. Scoliosis gauge (Barwell). Scoliosometer { Schulthess. / Scudder. Thoracograph { Beondetti. / Socin and Burkart. / Schenk.

FEVER: ITS FUNCTION IN DISEASE.[1]

By J. Newton Hunsberger, M.D.,

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The causes which produce fever are many and varied. It is evident that there must be some change in the functions of one or more organs before there will be sufficient disturbance to break the proper ratio between heat-production and heat-dissipation. In health there is constantly going on a heat-production, an oxidation of the constituents of the organism, as is shown by an estimation of the amount of carbonic acid and urea discharged, or as measured by the calorimeter. Any changes which occur in the protoplasm of the tissues, resulting in an exhibition of their functions, are attended by the evolution of heat and the production of carbonic acid and water. The more active the changes, as the result of muscular exercise or environment, the greater the amount of carbonic acid and water evolved. In order that the protoplasm may perform its function, this destructive metabolism must be met by a supply of food material.

We have, therefore, two processes constantly going on: the building up of protoplasm from the food,—constructive metabolism,—which does not produce heat, but probably the reverse; and oxidation of protoplasmic materials,—destructive metabolism,—resulting in the production of energy by which heat is produced, and carbonic acid, urea, and water evolved.

This process is an exceedingly complicated one, and is in reality life itself,—a chemical process. The chief heat-producing tissues are the muscles, secretory glands, and the brain. The muscles forming as they do so large a part of the organism, and as muscular energy, even the slightest, is always attended by the evolution of heat and the production of carbonic acid, it is very evident that muscular activity forms almost all the bodily heat. The secretory glands, principally the liver, along with the brain, playing but a minor part.

It is obvious that this heat must be removed from the body or a normal condition cannot be maintained. To accomplish this, radiation into a surrounding cooler atmosphere takes place, or by evaporation of moisture from the surface of the body and lungs. The greatest agent in heat-dissipation is the skin, possibly 70 or 80 per cent. of the whole amount is that which takes place by conduction, radiation, and evaporation from its surface. It offers a large surface for conduction,

[1] Read before the Montgomery County Medical Society, December 8, 1897.

radiation, and evaporation: it contains a large amount of blood, and this amount varies under circumstances which demand a loss of heat from the body or a retention of the same. This latter action is the same as that which governs the supply of blood of all the organs and tissues of the body. A vasomotor nerve influence which causes a greater or less tension in the muscular fibres of the arteries and arterioles, and a corresponding increase or lessening of their calibre, accompanied by a greater or less current of blood. This vasomotor action is dependent on various factors, mostly external stimuli, such as changes in the surrounding temperature and humidity of the atmosphere. The effect of such stimuli varies in different individuals and surroundings. It is possible to train the body to resist the greatest extremes of temperature without apparent harm.

There are cases on record of men who have worked in a temperature of 350° F., while Carpenter cites the case of a man who subjected his body to a temperature of between 400° and 600°. Of course, the heat must be dry.

The power of generating heat varies at different periods of life in the individual, and under different circumstances. From personal experience we know that the powers to resist cold are lowest after midnight and after extreme exertion. So also in pathological conditions, the temperature usually falls after midnight. There is also a difference in the resisting powers of different individuals to stand extremes of temperature which cannot always be accounted for by acclimatization.

We also know that the younger the animal the less able it is to generate sufficient individual heat. According to Edwards the temperature of a seven-months' child, though well clothed and near a good fire, was, three hours after birth, 89.6° F. As old age comes on we again lack the power of sufficient individual heat-generation, and again the chimney-corner is inevitable.

The heat-centres which preside over heat-production and heat-dissipation are not accurately located. According to Reichert the thermo-accelerator centres are probably in the corpora striatum, and possibly in the bulb and pons.

The thermo-inhibitory centres are in the cerebral cortex, while there are general centres in the cord. The influence of the nervous system in modifying the amount of heat or in the production of heat is very great. Experiments and observations show that when the nerve-supply is removed from any part, the temperature falls, or when death is caused by severe injury or removal of nerve-centres, the temperature rapidly drops, even though respiration and circulation still go on. In states of nervous excitement, as in anger or passion,

there is often an increase of temperature. It is well known how easily the temperature of a child may be run up by a spell of crying, and sometimes an elevation of temperature in hysteria can be accounted for only by the nervous theory.

Since heat is brought to the surface of the body largely through the circulation of the blood, an increase in the normal supply would mean a more rapid dissipation of the heat of the body, depending on the rapidity and fulness of the current. Such conditions, produced by the influence of the vasomotor centres of the nervous system, play an exceedingly important *rôle* in the proper maintenance of a normal temperature in health, and offer possibly the best means to an antipyretic treatment in disease.

According to H. C. Wood, there is in the pons a heat-centre which controls vasomotor action; he admits it may be only a muscular vasomotor centre, but is inclined to think it is an inhibitory heat-centre, which acts by decreasing oxidation of the constituents of the organism, and thus checks heat-production. Wood, by the use of the calorimeter, found that there was more heat produced by high-fed, healthy dogs than in pyemic dogs with a high fever. Sanderson, basing his results on the estimation of carbonic acid and urea eliminated, found that healthy, high-fed men produced more heat than the febrile human being; showing very clearly that it is not the amount of heat produced which causes pyrexia, but the retention of the same.

Some observers have shown that more heat is dissipated in fever than in health, but this increased loss is not in proportion to the increased production of heat.

For the existence of an elevation of temperature there is demanded some exciting cause, some agent within the body, which, according to H. C. Wood, "shall act upon the nervous system, which regulates the production and dissipation of animal heat,—a system composed of diverse parts, so accustomed to act continually in unison, in health, that they become, as it were, one system and suffer together."

The phenomena of fever with which you are all familiar—as increased pulse-rate and respiration, thirst, diminished appetite, emaciation, changes in secretion and excretion, and the nervous train of symptoms,—headache, insomnia, stupor, delirium, twitching, etc.—cannot, as our text-books teach us, always be accounted for by an elevation of temperature. It is not the elevation of temperature which causes the phenomena mentioned, but the attempt of nature to rid itself of the poison generated by the agent causing the disturbance. We are continually being exposed to the entrance of disease-germs into our bodies, and there is no doubt but that they often are successful

in effecting an entrance. That they do not always cause disease is due to the watchfulness of the white blood-corpuscles. This theory of phagocytosis, advanced by Metchnikoff, is of the greatest interest in the study of disease, and I believe the basis of the successful treatment of diseased conditions. You will recall that the growth of the micro-organism is arrested at once by the action of the leucocytes which ingest and digest them, just as the ameba surrounds a diatom. This action has been quite recently shown by the micromotoscope, which is simply a kinetoscope for photographing cell-life in action, as seen in the microscopic field. The images being magnified thousands of times, the views of the blood-corpuscles and microbes being very realistic. It seems as though the leucocytes are endowed with a low grade of intelligence, a little higher than a mere selective tendency. The changes in the white corpuscles are very rapid. Some pictures show a leucocyte on the fast-moving stream, like a white cap on the sea, constantly changing its shape. It throws out or takes in its arms like an octopus, seizing the microbe in its path and destroying it by a process of digestion. Thayer, in speaking of the action of the leucocytes in malarial infection, says, "I have seen as many as three leucocytes enter the field of the microscope and simultaneously attack a flagellate body, while, sometimes, entire malarial parasites, or fragments of parasites, may be contained within the phagocyte."

When we know that in disease the number of leucocytes are enormously increased, and that an elevation of temperature by quickening the blood-current and hastening oxidation, all tending to cause a more rapid action of the leucocytes and affording them a better opportunity to meet offending organisms, it remains a debatable question whether an elevation of temperature in disease is not beneficial. The fight, then, is between the micro-organism and the leucocyte. This is the action which causes fever along with the irritant poisons, the toxin which every pathological micro-organism is capable of producing. Its object being to destroy the phagocyte, and, if possible, the entire organism. Metchnikoff found that, if infecting germs be placed under the skin of a rabbit, no infection ensues, if the leucocyte can attack and destroy them, but if the smallest possible infecting dose be inserted beneath the skin, germs protected by bibulous paper from the leucocytes, the animal dies because the body juices pass through to the germ and its poisons pass out readily, but the leucocyte cannot reach the germ itself to destroy it. In every acute disease there is an enormous increase in the number of leucocytes, unless the infection is so malignant as to reach an early fatal termination; under these circumstances there is no increase in the number of leucocytes.

Samuel suggests that fever may have beneficial effects, in view of

the fact that certain parasitic organisms are destroyed at certain temperatures. The bacilli of malignant pustule grow most vigorously at 95° F., while its development is very feeble at 104°. According to Koch the bacillus of tuberculosis grows most rapidly at a temperature between 98.6° and 100.4°, but its growth becomes slower as temperature increases, until it ceases entirely at 105°.

The spirilli of relapsing fever disappear at a temperature of 107.2° F., only to reappear a few hours before an onset of the fever. According to Wagner, when chickens were infected by anthrax bacilli, their temperatures rose several degrees, and remained so for several days; at the end of that time no bacilli could be found in their tissues; whereas, if the fever was kept down by immersing them partially in water, they all promptly died with all the symptoms of anthrax infection. The same effect was produced if antifebrin or acetanilide were used. Lowry and Richter found that if fever was produced by puncture of the corpus striatum, infection by the Klebs-Löffler bacillus, the pneumococcus, the coccus of erysipelas, and the micro-organism of chicken cholera, when the temperature of the body was 105° or 106°, failed to cause death as soon as usual, even though 100 times the ordinary fatal dose was injected. They also found that when three times the fatal dose of pneumococcus was injected, the animals with the high temperature survived.

Pasteur also records the fact that chickens infected with anthrax survive, but if cooled, promptly succumb. Guinea-pigs resist infection badly if cooled, whereas if fever were allowed to run its course, survived longer or recovered.

The question, then, comes to us, Is fever a harmful process? Within moderate limits we are justified in saying no; but a long-continued or excessively high fever is capable of doing great harm. There is, however, no evidence to prove that a temperature of 106° or 105° F., or under, is dangerous, remembering always to differentiate between the *temperature* and a *cause sufficiently virulent* to produce such a fever. We know that in recovery from sunstrokes or, rather, thermic fever, there is usually no remaining lesion attributable to the high temperature.

According to Reichert, the highest temperature consistent with life for some days is—in man, 106° F.; in birds, 120° to 122° (110° normal); in dogs 110° to 114° (98° to 102° normal). All of the morbid changes in structure, supposed to be due to a high temperature, have been found to be caused by disease-germs and their toxins. We may have these morbid changes even to a fatal termination, with slight or no elevation of temperature, as is occasionally seen in diphtheria. On the other hand, according to H. A. Hare, fever brings

with it increased glandular activity, and is a most powerful stimulant to the heart, which, by its increased action, forces the blood more rapidly through the body, increasing the action and speed of the leucocytes, and the amount of blood to all the tissues, thus furnishing more oxygen and nourishment to all the parts of the body to meet their increased activity. This glandular activity increases the number of white blood-corpuscles, which, if we accept Metchnikoff's theory, is of the greatest moment.

I would like to ask whether any of the members of this society have seen a death due to hyperpyrexia, barring sunstroke? It is, of course, possible for such deaths to occur, but they must be exceedingly rare. I can recall many cases, with long-continued temperature of 105° or 105.5° F. and under, while I have seen, principally, in children and young adults, temperature of 106° and 107°, recover time and again with no remaining ill effects. I can assure you that, in the earlier years of my practice, my clinical thermometer gave me many a bad half hour. I have learned since then that the thermometer is an indispensable aid to diagnosis; a nice plaything for the nurse to use when time hangs heavily on her hands; and an excellent instrument to impress the laity with the severity of their illness and what excellent physicians we are. For it is written and duly recorded that their temperature rose to 100° or possibly 102°, and that we broke it.

The question we should ask ourselves by the bedside of our patients is—not, what does my thermometer record? but, how well does my patient stand the fever? Do we not allow a little fever to blind our best judgment? Do we not sometimes content ourselves with the reading of our thermometer instead of looking deeper into the condition of our patient, and seeing whether what seems to us such a dangerous condition may possibly be a beneficial one,—Nature's attempt to rid herself of disease? It is quite plausible, therefore, that a temperature up to 103° or 104° F. is beneficial. Any temperature above this *may* be met by the external use of water in its various forms, not forgetting the internal use of such quantities as the stomach will tolerate.

The reasons why water, both externally and internally, should be the only treatment of fever, if *any* is demanded, must be plain to all. There was a time, not many years ago, when the medical profession went wild on the subject of antipyretic drugs. The medical journals were filled with accounts of the wonderful action of the coal-tar group, with a most curious intermingling of cases, which suffered collapse and death. These latter, of course, were most faithfully put down as due to "individual idiosyncrasies." A very handy phrase when we wish to explain how it was done. But time rights all things, and I am

sure none of the members of this society are so benighted as to use acetanilide or allied preparations for their antipyretic action in any depressing disease, with particular reference to typhoid fever. Griffin, in Foster's Therapeutics, says of acetanilide, "The continued use of acetanilide is the direct cause of fatty degeneration of the heart, liver, and kidneys." Just the condition we most aim to avoid. He further says, "The impression, unfortunately deep-rooted, that *fever* is an enemy to be met and vigorously attacked, whensoever and wheresoever it makes its appearance, has been the cause of innumerable therapeutic blunders and of incalculable harm. Unfortunate, indeed, was this belief previous to the introduction of the modern antipyretic drugs; but with their appearance the situation became doubly serious, for there were then put into the hands of the prejudiced and the indiscreet the weapons wherewith the supposed enemy might be attacked, but weapons which, unwisely used, became the most dangerous of instruments. In their eagerness to drive away the fever many were quite regardless of the fact that a moderate rise of temperature, lasting for a limited time, was in itself comparatively harmless, and therefore they hastened to remove this elevation of temperature by the administration of drugs which in themselves were not harmless, and thereby they substituted a frequently positive harm for an often unimportant symptom. Among the drugs so misused was acetanilide, and, though probably the cause of less mischief than some others, primarily because it is a less dangerous drug, but mainly because the previous appearance of the latter had been productive of the wisdom learned by experience, yet its indiscriminate use resulted not seldom in repeated sweating and consequent exhaustion, cyanosis, enfeebled circulation, and, in some cases, collapse and death."

Headaches.

Dr. Dercum declares that headaches, if due to pelvic disturbances in the female, are usually located at the top of the head and are accompanied by soreness of the scalp; if due to digestive disturbance, they are occipital or frontal; if to disease of the pharynx, they involve the entire vault, as though the pharynx were expanded and extended upward; if due to migraine, they are usually one-sided, local, and accompanied by soreness at the supraorbital foramen; if to eye-strain, generally superciliary or frontal, sometimes occipital; if to disease of the nares, between the eyes and extending backward.—*Medical Record.*

TWO CASES OF PROGRESSIVE NEUROTIC ATROPHY.

By Charles S. Potts, M.D.,

PHILADELPHIA,

Instructor in Nervous Diseases, University of Pennsylvania; Assistant Neurologist, University Hospital.

Reports of cases presenting the symptom group which has been named progressive neurotic atrophy, also known as progressive neural atrophy and the peroneal type of progressive muscular atrophy, are of such rarity as to make that of the following two cases of interest and value.

Case I.[1]—Joseph G., aged 21 years. The family history is excellent, and shows nothing bearing upon the disease from which the patient suffers. He has never had any illnesses that he remembers. When able, he worked at the plumber's trade, and his habits have been good.

When 16 years of age he noticed difficulty in raising the toes of the right foot from the ground; in a short time the same trouble was noticed upon the left side; and the patient was much annoyed by his tendency to stumble. He then noticed that the appearance of his feet was changing; as he expressed it, "they were gradually drawn up, and the soles of his feet became hollowed out." When first seen by the writer his condition was as follows: Mental faculties not impaired. Gait waddling with a tendency to catch his toes, to avoid which he raised his feet higher from the ground than normal (steppage gait).

The patient was unable to dorsally flex the feet, but could raise himself upon his toes. Extension of the leg could not be performed except with difficulty. This, he said, was only noticed lately. The thumbs could not be adducted, and adduction and abduction of the fingers were done with an effort. All other movements seemed to be well performed. The feet of the patient showed well-marked cavus, with a tendency to equinus; the first phalanges of each toe, excepting the great, were dorsally flexed, while the second and third were plantar flexed. Atrophy of both tibialis anticus and peroneal groups of muscles was marked. The adductor of the thumb of each hand was also atrophied. Some atrophy of the interossei of the hands and feet seemed to be present. All other muscles appeared well developed. Fibrillary tremors were present in the extensors of the leg. The plantar reflexes were very faint and the knee-jerks were absent. Action of the sphincters normal. The tibialis anticus and peroneals of

each leg showed a well-marked degeneration reaction. The patient had never had any pain or paresthetic sensations. There was no tenderness of any of the nerve-trunks.

Sensation, both touch and pain, was much diminished in the soles of the feet, everywhere else it was good. The temperature sense was not impaired. The legs and feet felt cold to the touch and were cyanotic. After being under observation for several months without any marked changes in the symptoms being noted, he disappeared for several months more, making an interval of about nine months, when he again came under observation. Atrophy of the vastus internus of the right leg was then noted. The reaction of degeneration was also well marked in each adductor pollicis. He complained that his legs were weaker.

Case II.—P., aged 38 years, a telegraph-operator by occupation. The family history contains nothing that would indicate that any of the patient's family had ever suffered from a similar trouble. One sister, being neurasthenic, was the only evidence of any nervous disease obtainable. The parents were not relatives. The patient was born at term, and, with the exception of measles and mumps when a child, he has never been ill until the onset of his present trouble, which was first noticed when 19 years of age. Until three years ago he used alcohol moderately, since which time he has been an abstainer. The first thing noticed was a tendency of the left foot to turn in when walking. Shortly after this the fact that the sole of this foot was "more hollow" than the other was observed. The foot gradually assumed the equinus position, and in the course of a year it was necessary to put an extra piece on the heel of his shoe. It was two years before the leg was noticed to be smaller than its fellow, the calf muscles attracting attention first.[2] From the time of the onset of the disease he has noticed at times a shooting pain, starting in the great toe and extending up the foot and leg. After exertion he would notice a dull pain across the instep. Fifteen months before coming under observation similar pains were noticed in the right foot, and have since continued. When examined the following conditions were noted: Mental faculties not impaired. Patient walks with a limp owing to weakness of the left leg. The left foot shows a well-marked talipes equino-varus with cavus. The great toe of the right foot is dorsally flexed, and some degree of cavus is apparent. All of the tendons in the dorsum of the right foot seem to stand out more prominently than normal. This would seem to be due to atrophy of the intrinsic muscles of the foot. There is atrophy of all of the muscles of the left leg, most marked below the knee.

Measurements showed the following: Right thigh, 19¼ inches; left

thigh, 18 inches; right calf, 14¼ inches; left calf, 9¾ inches. Wasting of no other muscles is apparent. The patient cannot raise the toes of the left foot from the ground, those of the right foot can be raised with difficulty. Raising himself upon tiptoe cannot be done on the left side. All other movements appear to be well performed. No fibrillary contractions observed. Plantar reflex was absent on the left but present on the right side. Knee-jerks normal on both sides. Action of sphincters normal. Electrical examination showed quantitative decrease to both faradism and galvanism in the muscles of the left leg. No tenderness was present excepting at two points in the sole of the right foot, one just posterior to the ball of the great toe, and the other at the middle of the plantar arch, at these points pressure caused severe pain. Sensory impressions were well perceived, excepting in the sole of the left foot, where both tactile and pain sense was not so acute as upon the other side. He complained of his feet getting cold very easily, the left the more so, but there was no blueness of the extremities or other vasomotor disturbance. While in the hospital, tenotomies of the tendo Achillis and the tendons of the tibialis anticus, extensor longus pollicis, and the plantar fascia of the left side were done by Dr. Willard, causing much improvement in the usefulness of the foot.

About three months after coming under observation and one month after the above-mentioned tenotomies were performed an abscess formed at the ball of the left great toe; this left a superficial ulcer about one inch in diameter, which would not heal in spite of all treatment, and was probably trophic.

These two cases present almost typical pictures of this affection. The first is the more so, the second case being atypical in the long interval that elapsed before the disease attacked the right leg. As a rule, the atrophy is symmetrical, but a few cases have been observed in which the progression of the atrophy was similar to that observed in this patient.

The improvement in the usefulness of the foot, after the tenotomies above mentioned were performed, is of interest. Cases have been also reported by B. Sachs[3] and by Dercum and Leopold[4] in which this was done with advantage. While diagnoses based on clinical symptoms and not on pathological findings may be always open to some doubt, our diagnosis in these cases would seem to be as well justified as any diagnosis based on clinical evidence can well be. All other possible sources of muscular atrophy—*i.e.*, acute poliomyelitis, multiple neuritis, the Aran-Duchenne type of progressive muscular atrophy, and the primary muscular dystrophies—can be readily excluded.

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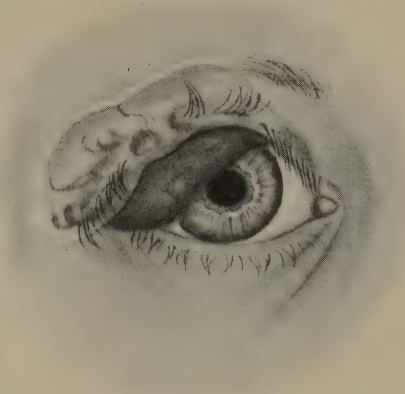

Nevus of eyelid, with extensive secondary conjunctival involvement.

In most of the cases presenting these symptoms, degeneration of the peripheral nerves, with in some cases changes in the posterior columns, has been found, but in a case recently reported by Oppenheim and Cassirer, no changes in the nerve-trunks or central nervous system could be detected, but extensive muscular disease was present. As yet, satisfactory autopsies have been few, and any positive statements as to the pathology of this affection are not possible. For the opportunity of seeing and reporting these cases the writer is indebted to Dr. De F. Willard.

REFERENCES.

[1] This patient was shown to the Philadelphia Neurological Society at the meeting held November 23, 1896, but a complete history was not then published. *Vide* Journal of Nervous and Mental Diseases, Vol. xxiv, p. 285.

[2] It seems evident from the deformity that first appeared that the tibialis anticus and peroneals were first affected, although some authorities assert that the calf is attacked first; but the former would not be so apt to attract attention as the larger and more prominent muscles of the calf.

[3] Nervous Diseases of Children, p. 413.

[4] Journal of Nervous and Mental Diseases, Vol. xxiv, p. 403.

NEVUS OF EYELID, WITH EXTENSIVE SECONDARY CONJUNCTIVAL INVOLVEMENT.[1]

By G. Oram Ring, A.M., M.D.,

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Ophthalmic Surgeon to the Episcopal and Samaritan Hospitals.

I desire to present, somewhat briefly, the history of a case of absorbing interest, which is at present under my professional care, and which, by reason of its serious character and great rarity, will form a proper subject for the consideration of the section.

On February 13, 1897, through the courtesy of my friend, Dr. J. Cardeen Cooper, a female, M. M., aged 18 months, was referred to me for treatment of the right upper eyelid. Dr. Cooper has very kindly furnished me with a history of the case previous to the date of my examination, the child having first come under his observation in June, 1896, five months after birth. At that time there existed on the right upper lid a nevus of the size of a small shell-bark, which the mother stated had grown in about two months, as at birth there had existed only a small mark, about the size of a pin's head, near the edge

[1] Presented at the Section on Ophthalmology, at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, June, 1897.

of the lid. There was absolutely no conjunctival involvement, nor any apparent evidence of defective vision.

As the nevus continued to grow, it was operated on by one of the best general surgeons of our city, by ligation, and at the time of operation was as large as a small English walnut. Five deep sutures were placed at the base of the growth, which then involved the arch of the brow. In one week it sloughed off, leaving a healthy ulcer, which healed rapidly without interruption, but with some contractile cicatrization. For three or four weeks the condition remained apparently stationary, then began the protrusion of the mucous membrane, which gradually reached the proportions which existed when I first saw the case, about nine months after the original operation.

On the skin surface of the lid are several purplish red areas of discoloration, with a number of markedly dilated vessels, between and around which the cicatricial area can be distinctly outlined. There is a cicatricial line occupying the outer three-fourths of the brow, a few hairs still remaining at the inner fourth. The lid is showing evidence of cicatricial ectropion. A number of the lashes at the central border have grown upward and external to this area, for about a quarter of an inch the lashes are wanting. A purplish red mass projects down from the conjunctival surface of the outer three-fourths of the lid, which at its most pendant portion is about twelve millimetres deep. When the lid is everted, the appearance of the inner two-fifths of its conjunctival surface was normal; the external three-fifths somewhat suggesting the appearance of a mass of granulation tissue, which extended well back into and involved the retrotarsal folds. The line of demarcation between the normal conjunctiva and the area of secondary nevoid involvement is very sharply outlined. The many dilated vessels were easily recognized, and there was some evidence of extension into the orbital tissue.

The little patient is an only child. No history of miscarriage is present upon the part of the mother. There seems to be no inherited tendency to syphilis, cancer, or tuberculosis, and the child gives evidence of being well nourished. The fundus of the affected eye shows no abnormality, and the condition of the fellow-eye is normal. There are no enlarged vessels at any other part of the body, nor any hypertrophy of the preauricular cervical or lymphatic glands.

I operated on the case five times by electrolysis, twice inserting a needle attached to the positive pole deeply into the growths, and three times with the insertion of needles attached to both poles. There has been some slight contraction, but the result is not markedly encouraging. I have realized the possible danger of performing an excision, and have questioned the propriety of attempting so radical a measure,

in consideration of the extensive involvement of the conjunctiva. After the removal of the growth, a plastic operation will be required.

Dr. William F. Norris, who kindly saw the child in consultation, advised the continuation of electrolysis, and expressed the conviction that the gravity of the case was such that no radical operative measure should be adopted without the parents would consent to enucleation of the eye, if the orbital tissue were found to be sufficiently involved to warrant such a procedure.

[Later Note.—The treatment of the case was interrupted for several months, because of the summer vacation taken by mother and child. Under the continued application of electrolysis, combined with ethylate of sodium, the growth continues to shrink.]

As of interest in this connection, I desire to refer to three cases of nevus reported by Mr. Simeon Snell, in the *Transactions of the Ophthalmological Society of the United Kingdom* (1893).

Case I.—A girl, of 20 years, subject from birth to a nevus of lip and cheek, developed, at 18 years of age, a small purplish-red tumor of the plica semilunaris, after the lip growth had been operated upon. The caruncle was not involved farther than its surface was traversed by a series of enlarged vessels.

Case II was a boy 4½ months old, in whom a bluish tinge was seen through the integument in the upper angle of the right orbit. The depression of this angle was by a rounded elevation about the size of a bean. In addition to this, over the inner part of the sclerotic in the conjunctiva was a narrow band of vessels, several coils running towards the cornea. Beginning near the plica semilunaris, this band ran directly outward towards the cornea, and then skirting this it reached the middle line above, and passed backward over the globe, and was lost under the eyelid deep in the orbit.

Case III.—An adult female, with an angioma of the left conjunctiva. The eyelids on this side were normal, but a rounded swelling was noticed moving with the motions of the globe under the upper lid. It was about the size of an ordinary blackberry, of a deep livid color, and passed underneath the upper lid. The greater part of the tumor was disclosed in raising the lid and occupied the middle third of the exposed surface above the cornea. It had apparently existed since childhood, but was completely dissected under ether.

In the first and second cases, the treatment consisted of repeated applications of ethylate of sodium, cocaine being first instilled, and the ethylate carefully applied with a brush, care being taken to confine the application strictly to the part desired to be touched.

In the first case five applications, intervals one week, removed the growth, and in the second four applications caused it almost to disappear.

DISCUSSION.

Dr. S. D. Risley, of Philadelphia: One case that I have seen resembling Dr. Ring's occurred in a child only a few weeks old when I first saw it. There was at the upper outer end of the left eyelid a bluish tumor the size of a split pea, and when the child cried, it would become still more blue and very much enlarged. It was obviously congenital. When the child was 3 months old—they had previously declined any operative interference—the growth occupied the outer half of the eyelid and the ball was slightly displaced. When the child was lying prone, the tumor became very much enlarged, bluish on the surface, and when it cried violently the distention would lead you to pacify it lest it should burst, the tissue seemed so thin. The child died of an intracranial affection, and nothing was done to the eye. I think it was congenital, and that its origin was in the orbit.

Dr. Herman Knapp, of New York: With regard to cavernous tumors in the orbit I have had some little experience. These tumors, I think, should be extirpated. I treated some with electrolysis, but my success was very poor. They can be removed without fear of hemorrhage. If they are in the lid, and do not extend very far back into the orbit, you can clamp them and have a practically bloodless operation.

There is another group that is more difficult to deal with, but can be dealt with by extirpation,—that is, those that are seen in the lid, but also extend deeply in the orbit. They appear usually in the inner canthus, and the lid constricts them so that the portion outside, with that inside the orbit, gives them somewhat the resemblance of the old saddle-bags; they are divided into two portions. I remember a case of that kind in a child who came to me twenty-two years ago in New York. I extirpated that tumor by removing only the orbital portion. It was a true cavernous angioma. I introduced the spatula into the orbit, between the eyeball and the tumor, and compressed the afferent blood-vessels. I had another case of the same kind in Heidelberg, and this has always been my course with these tumors, to extirpate that portion that contains the afferent blood-vessels and leave the rest to shrink.

Dr. J. E. Weeks, of New York: These tumors have always possessed a great interest for me, because of their congenital origin in most every case and because of their tendency to increase rapidly in the young and much more slowly in the old. I have vividly in mind the case of a child that came to me at the age of 3 months, with a small nevus of the left lid and a cavernous development in the deeper structures. The growth was small, and I thought to destroy it by electrol-

ysis. This was tried quite thoroughly and some shrinkage took place, but the deeper growth continued to develop and I soon found that method entirely useless. The patient disappeared for a short time, and when I saw the case again the eyeball protruded, the cavernous growth extended to the cheek, and I asked for a consultation with a general surgeon, who advised that nothing could be done. I have in a number of cases removed them by extirpation, and it seems to me that the advice Dr. Knapp gave me when I was with him is good: "Remove those growths as early as possible, and remove them thoroughly, for they have a sarcomatous nature." If we examine them we find cells in the trabecular space that are decidedly sarcomatous. Originating congenitally, the malignancy is very slow, but seems to gain as they advance. Nothing should be thought of but their complete removal, and if that is done, the tendency to return is *nil.*

Dr. G. E. de Schweinitz, of Philadelphia: I saw the case that Dr. Ring has described some time before he did, probably six months, and am interested in hearing his result. I think if Dr. Knapp had seen that case he would have said it was not one for operation; I am speaking of the time when I saw it, and think even now Dr. Ring is doubtful of the advisability of an operation. I advised them, after consultation with one of the most brilliant surgeons in America, to let it alone. We used constricting, astringent applications to the conjunctiva, and the chances of electrolysis and final operation were explained to the mother.

One word in regard to dissecting out cavernous tumors of the lid. I have had one case of this kind in which we did not even use the clamp. The whole thing looked like a mass of fishworms in the lid; it was perfectly encapsulated and extended back almost to the apex of the orbit. When we got it out it proved to be really a sac enclosing this mass. The case was referred back to another clinic for ptosis operation. I have had no experience with the ethylate of sodium. Snell has highly recommended it, but it would be well to confirm his results.

Dr. S. C. Ayres, of Cincinnati: I have had a case a great deal like Dr. Ring's. It was a baby 3 months old, one of a pair of twins, and very delicate. The tumor was in the lower outer portion of the right orbit. When the baby cried it would fill up and look as if the skin would burst. The conjunctival vessels seemed to have at times a pulsating appearance, though I do not think it was aneurism. I tried electrolysis with very satisfactory results; there was a great deal of shrinking of the tumor. The baby looked as if it would die if it lost an ounce of blood, and so was allowed to return home; and when it returned in October the tumor had not grown. I then resorted to the

method of extirpation. It was impossible to get a clamp to enclose it; but putting one-half of the Snellen ring clamp over the skin, I made an opening through the skin and dissected the whole thing out, uniting the wound in the skin with sutures placed deep. A photograph of the child when 7 years old shows, aside from a little scar, the whole disease to be obliterated.

ALUMNI NOTES.

Alumni Catalogue.

The Executive Committee of the Alumni Society of the Medical Department have just completed a list of the graduates of the last ten years, from 1888 to 1897 inclusive. The complete catalogue from 1765 to date may be obtained from Dr. Ewing Jordan, Harrison Building, Fifteenth and Market Streets, Philadelphia, for $1.50, or either of the last two appendices may be obtained for twenty-five cents and postage. The last appendix includes over 1500 names, and is the first step towards the preparation of a more elaborate catalogue, such as has already been published by the College Department of the University. From lack of funds the work on a similar catalogue of the Medical Department is progressing slowly.

Alumni Banquet.

The Alumni Association of the University for Northeastern Pennsylvania held its first banquet at the Hotel Jerym, Scranton, on the evening of December 28. About one hundred alumni were present, and the reunion was a decided success. Among the toasts were "A Great University," responded to by Professor Hampton L. Carson; "The Medical and Veterinary Departments," by Dean Marshall; "The College," by Dean Penniman; "Old Penn and College Sports," by Coach Woodruff; and "Our Foot-Ball Team," by Captain Boyle. Toasts were also offered to "Columbia," "Harvard," and "Cornell and Pennsylvania." A letter from Dr. S. Weir Mitchell was read by his son, Dr. John K. Mitchell, and selections were rendered by a few members of the University Glee Club.

Appointments.

Dr. Henry Gage, of the Class of '94, has been appointed an assistant surgeon in the United States army.

Dr. George D. Milliken, of the Class of '91, has been elected to the position of assistant professor of Operative Technics in the Dental Department of the University of Pennsylvania.

Necrology.

Dr. John Stephen, aged 74 years, died in Reading, Pa., on January 7, 1898. Dr. Stephen graduated from the University of Pennsylvania in 1849, and practised in Reading for twenty-eight years.

Dr. William Scott Fremaine, U. S. A., died in Buffalo, N. Y., on January 9, 1898. Dr. Fremaine was born in Prince Edward Island, Canada, September 13, 1838, and graduated from the University of Pennsylvania in 1859.

The Clinical Value of the Widal Test for Typhoid Fever.

Dr. W. Gilman Thompson, having gathered data regarding the Widal serum-test for the presence of typhoid fever from five of the larger New York hospitals, publishes his results in the *Medical News* (October 30), and reaches the following conclusions:

(1) While the test is positive in the large majority of cases of enteric fever, and negative in the greater number of other diseases, there is a margin of error of 11 to 12 per cent. on each side of what might be called the normal line, between cases in which the test fails where it ought to succeed and succeeds where it ought to fail, in order to make it of real clinical value.

(2) This total of 23 per cent. of possible error includes unfortunately just those cases in which there is the greater doubt upon the purely clinical side.

(3) As a genuine diagnostic aid the test has about the value of the diazo-reaction in typhoid urine, or the study of leucocytosis in pneumonia,—that is, it is confirmatory in connection with appropriate symptoms but misleading if positive reliance be placed upon it.

(4) The fact that an expert bacteriologist is required to make the test is offset by the ease of transportation of specimens of dried blood which long retain the power of reaction, and it is greatly to be hoped that a further possible improvement in technique may place this most ingenious test upon a firmer practical basis than can at present be claimed for it.

EDITORIAL.

THE ANNUAL REPORT OF THE PROVOST.

The annual report of Provost Charles C. Harrison to the Trustees of the University of Pennsylvania for the year ending August 31, 1897, has just been issued. Mr. Harrison has made a very careful retrospect of the year's work in every department, and has indicated certain lines along which the future expansion of the institution should be laid. The University has outgrown its present estate. The fifty acres which it owns are already occupied or have been set apart for buildings soon to be erected. Mr. Harrison says, "We shall look to the city of Philadelphia to enlarge, as soon as practicable, the University's estate, so that we may have the opportunity of continued development, which we feel is our right in view of our rapid growth in the past."

During the year 2811 students were in attendance, an increase of 179 over the previous year. It will no doubt be a surprise to many that the University aided the large number of 331 students in the pursuit of an education during the past year. The amount of aid thus extended in various ways amounted to no less than $52,371.50. The rapid growth in the numbers in attendance at the University has made a corresponding demand upon its resources in aiding indigent and deserving students. The Provost believes that free tuition is now extended to a larger number than the University can afford, and beyond the limits which are just and proper.

Of the 331 persons aided by the University, fifty held scholarships of the city of Philadelphia; thirteen held scholarships under the appointment of the Governor of Pennsylvania; twenty-five were provided for by endowment, and the remaining 243 were aided by the University at its own direct expense, the amount of fees remitted to these 243 persons being $29,956.50.

Mr. Harrison again calls attention to the fact that the average age of students entering the college is too high. In 1896 and 1897 it was eighteen years as against eighteen years and seven months in 1895 and 1896, and eighteen years and six months in 1894 and 1895. The remedy which is suggested is the co-operation of parents with

teachers of the preparatory schools. The effect of the condition alluded to is to turn the students into professional schools without the proper and even necessary preliminary college course.

In the matter of athletics the report says: "The plans which were formulated nearly three years ago for the oversight of the athletic interests of the students found a partial completion in the appointment by your Board last spring of Dr. Casper W. Miller as Director of Physical Education. Hitherto we have been able to claim but a small part of the time and energies of our Director of Physical Education. We have, however, a claim upon the whole time and energies of the present incumbent, who will have a general supervision over the health and comfort of the students. The supervision of athletic sports by the University Athletic Committee is giving satisfactory results. The standard of scholarship is evidently kept up, and as the various athletic interests have adjusted themselves to the supervision to which they have been subjected there is more harmony among them than ever before."

The University dormitories are pronounced to be a distinct success. The students have lived more hygienically, and in many ways more wholesomely in the dormitories than they have been able to live outside their walls.

In the Department of Medicine the total number of students who entered the school during the academic year 1896–97 was somewhat smaller than the year preceding it. This decrease is attributed to the additional requirements for admission, and the fact that the tuition fee was raised from $150 to $200. The decrease is, however, a small one. The completion of the Agnew Memorial Pavilion gives the University Hospital a capacity of 320 beds.

During the year the University received $638,925.33.

In closing his report the Provost says, "We may confidently look to the whole State of Pennsylvania, and I hope soon beyond the limits of the State, for the sums of money necessary to carry on our work. The needs of the University at this time are great in amount and pressing in their urgency. We need a building for our graduate school; we need a physical laboratory; we need a University gymnasium; we need a great law-school building; we need a building for our school of architecture; we need a commons hall. We need to continue the dormitories, to erect new and important medical laboratories; to remodel the Veterinary Department; we need scholarships and fellowships; we need means for the thousand and one minor matters, each one of which is of importance to some individual teacher at the University and which should be provided, and last, but not least, we need a University chapel.

SUCCESSFUL REMOVAL OF THE STOMACH.

THE profession throughout the civilized world is interested in watching the case of complete removal of the stomach, reported by Dr. Carl Schlatter, of Zurich, Switzerland. The patient was a woman, suffering from a tumor that involved nearly the whole stomach. After the removal of the organ the esophagus was joined directly to the intestine. At the end of nine days after the operation the patient was able to take milk, eggs, meat, gruel, etc. An interesting feature in the case was the occurrence of vomiting after the operation, which was to all appearances similar in character to that usually observed. At the end of three months after the operation the patient was described as a well woman to all intents and purposes. She is said to have a ruddy complexion, a clean, moist tongue, and absence of fetor of the breath. She stated that she had a good appetite and relished her meals. She was able to do her share of the daily work of the ward.

THE BILL TO RESTRICT ANIMAL EXPERIMENTATION.

WE call the attention of our readers to the fact that an attempt is again being made to pass a bill which will result practically in the suppression of animal experimentation in the United States. The unanimity of opinion of scientists and physicians against Senate Bill No. 1063 is remarkable. In the spring its passage was checked by a universal outburst of execration, and we urge our readers to write at once to their senators, lest the great calamity of its passage overwhelm medical science in the United States.

AMONG the recent publications of The Century Company, two are of special interest to physicians. The first of these, "Hugh Wynne," by Dr. S. Weir Mitchell, is an entertaining novel of the time of the American Revolution. It appeared as a serial in the *Century Magazine*, and was issued in October last. The popularity of the book is shown by the fact that it has already reached an edition of fifty thousand copies.

The second work referred to is "Doc Sifers," by the popular Hoosier poet, James Whitcomb Riley, in which the author has done for the American country doctor what Ian Maclaren has done for the Scotch physician, whose story has interested so many thousands of readers.

MEDICAL PROGRESS.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM PEPPER, M.D., LL.D, AND JAMES TYSON, M.D.,

ASSISTED BY

M. HOWARD FUSSELL, M.D., AND A. O. J. KELLY, M.D.

Pulmonary Tuberculosis and Obesity.

Queyrat (*Gazette des Hôpitaux*, No. 87, 1897; *Centralblatt für innere Medicin*, No. 46, 1897) states that similarly as instances of obesity in connection with tuberculosis in veterinary medicine are not especially uncommon, it is not absolutely necessary that tuberculosis in man be associated with loss of flesh. Although this is the rule, there are exceptions, of which he reports two instances. In these cases there was not only apparently robust health, but in addition a noteworthy increase of adipose tissue. This occurred not in consequence of healing of tuberculous lesions, but *pari passu* with active tuberculosis. Such observations are in so far important for the diagnosis and prognosis, as people apparently healthy are generally superficially examined and their sputum usually not at all. They may thus serve as the starting-point of the but too familiar contagion. It cannot be said whether this irregular manifestation depends upon a lessened virulence of the micro-organism or upon some peculiarity of the individual. The two cases indicate that persons affected with virulent tubercle bacilli cannot only live for years in apparent robust health, but they may in addition very much increase their adipose tissue.

Radioscopy of the Thoracic Organs.

Maragliano (*Riformo Medico*, September 11, 1897; *British Medical Journal*, December 4, 1897) first describes the radioscopic appearances of the healthy lungs and heart. Posteriorly the transparent appearance of healthy lung tissue is better seen than anteriorly. In suitable subjects the movements of the heart could be observed; the systolic ventricular contractions, the elevation of the apex could be seen; the heart did not change its position during the systole; no rotation could be observed. During deep inspiration the area of cardiac shadow was narrowed transversely and lengthened at the lower part; evidently in these conditions the heart assumes a more vertical position. In forcible inspiration the fulness of the ventricular pulsation was diminished. The delimitation of the heart, etc., by percussion was found to correspond very exactly with the radioscopic image. As far as pathological conditions of the thoracic viscera are concerned, the author believes that radioscopy will prove of much service in diagnosis,—for example, in a young girl presenting no physical

signs of tuberculosis, radioscopy revealed a very minute zone of opacity in the left apex. An injection of tuberculin gave the characteristic febrile reaction. Again, radioscopy is likely to prove useful in differentiating pleural affections from those below the diaphragm; also in aortic dilatation or deep-seated aneurism it is likely to be of much service,—for example, Bouchard was able to distinguish cardiac ectopia from old pleurisy and aneurism by this means.

Spontaneous Fractures in Syringomyelia.

Gnesda (*Mittheilungen aus den Grenzgebieten der Medicin und Chirurgie*, Vol. ii, Parts iii and iv, 1897) reports the case of a man, aged 30 years, who was admitted to the hospital with the diagnosis of spontaneous fracture of the leg. The removal of the dressings and the manipulations of the leg were apparently so painless that the case was immediately suspected to be one of some nervous lesion. Examination revealed a transverse fracture of both the tibia and the fibula three fingers' breadth above the ankle. Locomotor ataxia —at first the suspected cause—was readily eliminated, in the absence of any confirmatory evidence. Other neuropathic causes of fractures, such as paretic dementia and multiple sclerosis, were also excluded, and syringomyelia diagnosed, the only cardinal symptoms of which that was absent being the muscular atrophy. This, as is known, is sometimes wanting. No traumatism or cause could be discovered to account for the fracture. Union was not complete until the end of five months, and for this there was no explanation. In addition, he gives notes of five other cases which he had been able to collect from the literature. The reporters agree that the fractures are due to some change within the cord, but their explanation of the exact phenomena attendant upon the occurrence of the fracture varies. It is asserted to be due to disturbance of nutrition; to energetic muscular action which causes fractures in normal bones, and is consequently much more liable to cause fractures of bones when there is associated disturbances of sensation; to inco-ordination of the muscular movements; to the absence of inhibition and the defective muscular action which normally support the bone; frequent blows and knocks; brittleness of the bones, etc. The resemblance of the fractures in syringomyelia with those occurring in tabes is commented upon, and attention directed to the tendency of these fractures to be transverse.

Rheumatoid Arthritis (Osteitis Deformans) affecting Bones 5500 Years Old.

Page (*British Medical Journal*, December 4, 1897) reports the changes found in bones discovered by Professor Petrie last winter. The skeleton was that of a man between 50 and 60 years of age. The body was found complete (not dissevered), at full length, in wrappings of linen, in a solid block coffin without a lid. The tomb was in the middle of a cemetery of the Fifth Dynasty, at Deshasheh; and the burial, both in the mode of wrapping and the coffin, was like others of the above date around it. No doubt can be raised as to its being of the same age as the 150 tombs of that cemetery. The bones are, therefore, at least 5500 years old, and show pathognomonic signs of rheumatoid arthritis (osteitis deformans). The cartilages and bones of the joints show degenerative changes associated with hyperplastic bony outgrowths. There are eburnation and grooving of the articular surfaces combined with nodular outgrowth and

lipping of the bones, such as is found only in cases of rheumatoid arthritis. In addition, the wide-spread distribution of the effects of the disease, and its incidence chiefly in the joints of the hands, producing a characteristic deformity, is thought to place the question beyond doubt. The changes in the articulation of the atlas and axis, in the maxillary joint, in the knee-joints, in the joints of the hands or of the feet, are considered alone in each instance sufficient to justify the diagnosis. The microscopic structure of small portions of the articular surface of the knee-joint was investigated, with the hope that traces might still persist of the special dumbbell-shaped bacillus found by Drs. Bannatyne and Wohlmann in cases of rheumatoid arthritis, and more particularly investigated by Dr. Bloxhall. Sections of the cartilage of the condyles of the left femur showed distinct fibrillation of the matrix (as pictured by Ziegler in cases of osteitis deformans). On staining some sections by the method recommended by Bloxhall, with gentian violet and aniline methylene blue, for three to five days, and then examining with the high power of a microscope, one observed small bodies resembling in number and appearance the minute bacilli described by him as occurring in cases of rheumatoid arthritis, but the evidence was so doubtful that one had reluctantly to come to the conclusion that the presence of the specific organism in this case remained unproven. It is interesting to thus find evidences of rheumatoid arthritis existing so long ago as 3700 B.C., and more especially in a country the climate of which offers one of the best therapeutic factors for the treatment of this particular disease. It is possible that the person affected in this case may have been merely a visitor to Egypt. This case is thought to be more than 2000 years earlier than any previously recorded case. *Mirabile dictu.*

Locomotor Ataxia and Aortic Disease.

Ruge and Hutter (*Berliner klinische Wochenschrift*, August 30, 1897) found that in 138 cases of locomotor ataxia twelve—or 8.76 per cent.—were complicated with valvular disease. In nine of the cases—or 6.5 per cent.—the lesion was aortic disease. The valvular affection generally first showed itself after the tabetic symptoms were well advanced, and in one case it developed under observation. Five cases were undoubtedly syphilitic, and six probably so, but in one case there was no evidence of the disease. In two cases aortic aneurism was associated with the valvulitis. Rheumatism was only noted in two of the twelve cases. As symptoms are not always present the aortic disease may be overlooked. The authors believe that the association of the two diseases is the result of syphilis, which is an important cause, both of tabes and of cardiac disease.

Tetany of Gastric Origin.

Berlizheimer, of von Jaksch's clinic (*Berliner klinische Wochenschrift*, September 6, 1897, and *British Medical Journal*), says that this form of tetany is very rare, and that only eleven genuine cases are on record. He then relates a case in a man, aged 35 years, who was admitted with pain in the abdomen. There was some impairment on percussion at the right base, and a hemorrhagic fluid was drawn off by the exploring needle. The urine contained at one time hematoporphyrin, but no albumin or sugar. Later there was some jaundice, and a tumor could be felt in the region of the gall-bladder. The

stomach was much dilated. Within the week the patient was seized with tetaniform spasm. Trousseau's phenomenon was marked, and there was trismus. With the appearance of the spasm in the upper extremities and cyanosis there was rapid failure of strength, and the patient soon died. The stomach contents were carefully examined for ptomaines, with a negative result. A mouse injected with these contents died in a week of septicemia due to the staphylococcus. The clinical diagnosis was dilatation of the gall-bladder, dilatation of the stomach, and acute tetany; the pathological, a suppurating cyst of the pancreas, dilatation of the gall-bladder and jaundice by pressure on the ducts, suppurative peritonitis, and dilatation of the stomach. The tetany was here due to reflex irritation from the stomach nerves in consequence of the dilatation. It was not an intoxication, for no diamine or ptomaine could be found in the stomach contents, and the inoculation of animals gave rise to no toxic symptoms. There was no evidence here in support of any infective origin of the tetany, and there was nothing to show that it could be due to the peritonitis.

The Diagnosis of Primary Sarcoma of the Pleura from the Cells found in the Pleuritic Exudate.

Warthin (*Medical News*, October 16, 1897) reports a case of primary sarcoma of the pleura, in which the diagnosis was made from the cells found in the serous exudate. The latter contained a great number of spindle cells which, from their regular size and shape, were believed to be sarcomatous and not fibroblasts. After a study of the sediment of many cases of effusion into the peritoneal, pleural, and pericardial cavities, the author concludes that the following points seem to be worthy of emphasis:

(1) In all cases of this kind, when fluid can be obtained by exploratory puncture, cover-glass preparations should be made by fixing in absolute alcohol and ether. This should be done immediately after the withdrawal of the fluid from the body in order that mitoses may be preserved.

(2) In early stages of simple pleurisy the sediment contains endothelial cells, and no fibroblasts. The endothelial cells may be disseminated in large pieces.

(3) In fibrinous pleurisy, tuberculous or septic, the sediment contains, in addition to endothelial cells, numerous fibroblastic forms. In later stages, when adhesions are forming, the endothelial cells may be entirely absent, and only fibroblasts be found.

(4) In the diagnosis of sarcoma of serous cavities, the character and number of the cells, and the presence of numerous mitoses, are the points upon which the diagnosis must be based. It is, of course, evident that the quickly growing and soft forms of sarcomata are the ones most apt to lead to the presence of the cells in the fluid. The tendency of all sarcoma to break down after reaching a certain growth makes it likely that in most cases free cells will be found. The diagnosis of spindle-celled sarcoma is easy from the large numbers of spindle cells of similar size and shape, showing fewer branching processes than fibroblasts, and containing more mitoses. In the round-celled forms the tumor cells are to be distinguished from the endothelial cells by their size, character of nucleus, and the relation of the nucleus to the protoplasm. The presence of mitotic forms will again be the most important point; in the small, round-celled sarcoma these are not so easily seen. The great difficulty will be in the differentiation of the cells of a polymorphous-celled sarcoma from

the fibroblastic forms found in fibrinous exudates. Aside from the general character of the cell and nucleus, the presence of division forms must in all cases we looked upon as being the most important point.

In conclusion, therefore, the presence of numerous cell-division forms in the cells of the sediment of serous exudates may be taken as strong (perhaps conclusive) evidence that the effusion is due to the presence of a new growth, inasmuch as mitoses are but rarely found in the cells of purely inflammatory exudates.

SURGERY.

UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.,

ASSISTED BY

ELLWOOD R. KIRBY, M.D.

Renal Surgery.

Albarran (*Gazette Médicale de Paris*, September 11, 1897) strongly advocates catheterism of the ureter for the cure of hydronephrosis; and, if that be inefficient, failing to empty the kidney, the catheter should be left in and the organ explored by operation. By means of the instrument the seat and nature of the obstruction can be ascertained; and then uretero-pyelostomy can be performed with relative ease. Nephrectomy should never be the first step in pyonephrosis. As a rule, the general health of the patient and the condition of the opposite kidney contraindicate this operation, and nephrotomy is the right course. Should it be found advisable later, when health is restored, to remove the kidney, secondary nephrectomy can be done under better conditions.

A retained ureteral catheter will greatly shorten the duration of a nephrotomy fistula, and the author treats a spontaneous fistula in the same way.

The author greatly distrusts nephrectomy for malignant tumors, as recurrence is the rule.

Partial resection for adenomata seems to mean the hastening of recurrence; indeed, these growths are of a nature which justifies, perhaps, total extirpation of the organ. On the other hand, in unilateral tuberculosis the author thinks it best to remove the kidney early. Nephrotomy is merely palliative in renal tuberculosis, counteracting retention when the patient is too ill for operation, and, above all, when the disease is bilateral.

In nephrorrhaphy it is not only useless but dangerous to dissect off a portion of the capsule. The process prolongs and complicates the operation and increases the local sclerosis of the kidney.

Nerve-Suture.

Seck and Saenger (*Archiv für klinische Chirurgie*, Vol. liv, p. 271) relate a case of paralysis of the musculo-spiral nerve which was successfully treated by suture of the peripheral end of the injured nerve to the median.

The patient was a boy, aged 5 years. The severe wound associated with a fracture of the arm healed up well, but a paralysis of the musculo-spiral resulted. At operation it was found that the two ends of the divided nerve were wide apart. The median nerve was therefore searched for, and a flap (base upward) of half of the thickness of the nerve was separated from the trunk and sutured at its distal extremity to the peripheral end of the musculo-spiral. The wound united by first intention, but the paralysis was not at first modified. The case was lost sight of for two years, but at the end of that time the paralysis was found to have almost entirely disappeared.

Extensive Resections for Tuberculosis of the Foot.

Wolfe (*Verhandlungen der deutschen Gesellschaft für Chirurgie*) said that for more than two years Bardenheuer has successfully performed extensive resections where he formerly resorted to amputation, in cases where the disease not only affected the tarsus, but also the metatarsus and the peripheral portion of the bones of the leg. While the shortening, owing to the extent of the disease, is sometimes very considerable, the patient still preserves his leg and foot, and the gait is much better than after an amputation. Permanent healing without sinuses requires an absolutely thorough removal of all tubercular tissue. The incisions are made at every point in healthy tissue without preservation of diseased skin, tendons, muscles, and periosteum, and without regard to the extent of the bony defect. A dorsal transverse incision is always necessary for a clear view and easy performance of the operation. It necessitates obviously cutting the anterior tibial artery. Wounding of the posterior tibial artery is occasionally also unavoidable, in fifty-three resections for caries of the foot, wounding of both tibial arteries occurred five times, resulting three times in gangrene of the foot and secondary amputation. In one case, the toes and third and fourth metatarsals necrosed, but the rest of the foot was preserved and served as a useful stump. In another case, no bad results followed. The occurrence of gangrene entails no particular danger to the patient. It generally occurs in the dry form without constitutional symptoms, only once was the operation followed by moist gangrene when a speedy amputation effected perfect healing. The good results of these conservative measures in extensive tuberculosis of the foot lead to the application of the same method in tuberculosis of other joints. For the last two years no primary amputation for joint tuberculosis was performed, and there were only nine secondary amputations out of 176 resections of the larger joints,—shoulder, elbow, hand, hip, knee, and feet.

The method cannot be held responsible for a single fatal result, and, on the other hand, numerous limbs which would otherwise have been sacrificed have been preserved by the conservative measure.

Pistol-Shot Wound of the Pulmonary Artery and Aorta.

Perthes (*Beiträge zur klinische Chirurgie*, Band xix, Heft 2) reports the following case which was under observation in the Leipzig Clinic for ten months after the receipt of the injury.

Man, 26 years old, attempted suicide by shooting himself with a revolver carrying a ball of eight millimetres calibre. Examination showed that the bullet had entered in the second left intercostal space, three centimetres to the

left of the sternum. There was visible pulsation around the opening; but while the intercostal space was rendered prominent at every heart-beat, there was a simultaneous retraction in the fourth and fifth spaces. Distinct thrill over area of pulsation. Anteriorly, below the wound, absolute dulness. Over entire left anterior chest loud blowing murmur, most intense over the wound, not confined to the systole or diastole, transmitted to the carotids, especially on the left side. Patient recovered rapidly; dyspnea disappeared; pulse-rate continued high; but the heart action remained regular.

In the after-history, a prominent place was taken by the lighting up of an old left empyema, the patient at the time of the shooting having a discharging fistula as the result of an Estlander's operation (resection of the eighth rib in the scapular line). Two months after entrance, Estlander-Schede's operation with resection of third and eighth ribs under chloroform anesthesia. Good recovery,—patient up out of bed in several months. Died ten months from the time of suicidal attempt after four days' illness.

Autopsy showed that the left lung was retracted from the old empyema, and thus left the vessels uncovered; the bullet had opened the left pulmonary artery on its upper aspect, and had then perforated the anterior and posterior wall of the descending thoracic aorta, finally lodging in front of the transverse process of the sixth dorsal vertebra. A free communication existed between the two vessels forming an aneurism of a diameter of two centimetres. Immediate and fatal hemorrhage had not taken place, owing to the thickness of the adhesions surrounding the vessels, and the blood flowing from the aorta had found a natural channel for escape in the pulmonary artery. Death was due to acute edema of the lungs, bits of thrombi having apparently become dislodged from the aneurism.

The author has collected twelve cases of lesions of the aorta which were not followed by immediate death.

THERAPEUTICS.

UNDER THE CHARGE OF

HORATIO C. WOOD, M.D., LL.D.,

AND

ARTHUR A. STEVENS, M.D.

Preparations of Digitalis.

Hare (*Therapeutic Gazette*, August 16, 1897) states that digitalis contains at least five principles, of which four are physiologically active, while the fifth is inactive. From these there may be developed other substances by chemical alterations or decomposition, but they probably are not primarily present. Each of these ingredients possesses a physiological action of its own, and each has a solubility of its own. Of the four active constituents, digitalin, digitoxin, and digitalein act upon the heart muscle, while digitonin has an entirely different effect,—namely, the power of depressing the vagus nerves

centrically and peripherally and the inhibitory ganglia in the heart. The digitalin here referred to, the author states, is not the digitalin of amorphous form prepared according to the process of Homolle, or the crystalline digitalin of Nativelle, neither of which is a pure digitalin, but it is the digitalin of Schmiedeberg.

The effect of Schmiedeberg's digitalin upon the heart is that of a powerful stimulant, for under its influence the individual heart-beats become more powerful (four to six times greater than normal), and it simultaneously causes a rise of blood-pressure, first by increasing the strength of the heart, and second by stimulating the centric and peripheral vasomotor apparatus.

The physiological effects of digitalein and digitoxin are identical with those of digitalin, except that they do not stimulate the vasomotor centre or the pneumogastric apparatus, and so do not directly raise blood-pressure or slow the heart. In other words, he says, they increase the force of ventricular contraction. The effect of digitonin being to depress the vagus nerves, it will be seen at once that it antagonizes the vagal effect of the digitalin on these fibres, and so prevents digitalis from slowing the heart to the extent that would result from the use of digitalin alone. It also depresses the heart muscle. The proportion of digitonin in digitalis varies, but it is not present in sufficient amount to entirely overcome the inhibitory influence of the digitalin.

In considering the solubility of these principles, Hare says the different effects produced by the infusion and tincture or fluid extract can be readily explained. Digitonin, he says, is soluble in water, as digitalein is, but digitalin is only slightly soluble and digitoxin is scarcely soluble in water at all. As a result, the use of the infusion in a case of heart-disease would not give the patient the same degree of cardiac power as the use of the tincture, for not only would the most powerful stimulant of all to the heart, vasomotor system, and vagi be present in small amount, but, in addition, the large proportion of digitonin would antidote it. On the other hand, digitonin is sparingly soluble in alcohol, while digitalin and digitalein are readily soluble in it, while digitoxin being slightly so. It would seem therefore, he says, that in the presence of a failing heart and circulation the tincture or the fluid extract are the preparations greatly to be preferred to the infusion, because they contain large amounts of the active stimulant ingredients.

The reason that the infusion acts efficiently in some cases as a diuretic probably depends upon the fact that as it does not contain so much digitalin it is less apt to cause spasm of the renal vessels, but if the heart is feeble and there is renal stasis, the tincture is probably the better preparation to overcome this state, because it both aids the heart and by contracting the renal vessels overcomes the stasis. The use of digitalin is inadvisable, he adds, unless we are sure that we get that made according to the process of Schmiedeberg, for the other digitalins usually sold are very uncertain. The infusion is far more apt to disorder the stomach than the fluid extract or tincture, because of the irritating digitonin.

Saline Solutions in Obstetrics.

Bacon (*Medicine*, October, 1897) makes a plea for a more general use of injections of saline solutions in obstetrics. Many physicians are forgetful of the value of this method of treatment, and few realize how very simple is the technique necessary for its employment. The good results attending its use

in severe hemorrhage are well known. Although it is difficult to estimate the amount of blood lost during delivery, it is not far out of the way to say that a completely saturated sheet will contain two pounds. A deduction must be made for the amniotic fluid. In cases of hemorrhage of the "second degree" —that is, when from one-fourth to one-half of the blood in the body is lost (2.5 to 5 pounds)—the importance of prompt therapeutic aid is very great. Absorption from the rectum of an injection, though slow and rather uncertain, does well enough in the less severe cases, but when a patient has lost from two to five pounds of blood, it is necessary to use some quicker method to supply the required fluid in the vessels. This can best be accomplished by hypodermic injection, and the following simple rules are sufficiently accurate: A teaspoon of medium size is filled levelful of fine table-salt, which is put into a pint of water and boiled. A hypodermic needle fitted to the end of three feet of rubber tubing and then filled with the solution is thrust into the inner side of the thigh; or by using a glass Y-tube, two needles may be used at the same time, one in each thigh. The saline solution is allowed to flow through the tube, no force but that of gravity being necessary. Constant massage is made about the point of the needle to assist in disposing of the fluid. In this manner from twenty-four to thirty-two ounces may be introduced in fifteen minutes, if the irrigator is raised three feet. Not more than a quart of fluid should be given at one time; if necessary, the injection may be repeated in an hour or two.

It is well understood that in eclampsia the toxicity of the blood-serum is increased. Whatever their nature the poisons are not excreted by the kidneys fast enough. To increase the rapidity of excretion has been the rule of treatment. Formerly, venesection was employed to remove a part of the poisoned blood, while transudation from the lymph-spaces diluted that which remained. This dilution may also be obtained by the injection of saline solution. If a patient be plethoric, from twenty to forty ounces of blood should be withdrawn, and its place taken by the injected saline solution. In anemic patients it is better to make the injection without venesection. The salt solution is a valuable diuretic, diaphoretic, and purgative, as well as a diluent of the blood.

The treatment of puerperal fever by saline injections has been tried on the supposition that, by dilution of the bacterial toxins and hastening their elimination, the condition of the patient will be improved. The successes are too few to permit an advocacy of the procedure in these cases. In fact, the treatment of this dire affection has made practically no progress for three decades.

Opotherapy in Diabetes Mellitus.

Gilbert and Carnot (*Semaine Médicale*, May 10, 1897, and *British Medical Journal*) have tried opotherapy in many diseases of the liver, but as improvement is very difficult to estimate exactly in most cases, they confine themselves in this paper to diabetes, in which a lessened amount of sugar is an exact measure of the improvement. They recommend that hepatic extract, prepared as follows, should be given daily *per rectum:* three and a half to five and a quarter ounces of fresh pig's liver are minced in a machine and macerated for two hours in seven to nine ounces of water at 95° to 100° F., then filtered through muslin and expressed. This amount is usually well borne as an enema; if it is not, divided doses must be given. The cases of diabetes which derived the most benefit from the treatment were those of definite hepatic origin,—in subjects, for instance, with enlarged or cirrhotic livers. However,

if the hepatic cell is too diseased, the treatment fails, just as fatty fibres of the heart may refuse to react to digitalis. Thus it is found that obese diabetics passing over seventeen ounces of sugar daily improve but temporarily. An example is given of a man who passed more than thirty-one and three-quarters ounces. There was an initial improvement, as is the rule in such cases, but he died shortly afterwards. Several other failures are reported. Among the successes was a woman, who, on January 29, was passing 2392½ grains of sugar in twenty-four hours; three and a half ounces of liver were given a day. On February 8 the sugar had fallen to 1311¾ grains. The treatment being discontinued, it again rose to 1481½ grains. Other striking cases are reported; in one 293¼ grains were passed a day, but completely disappeared under the treatment; in another, 679 grains a day fell to nothing. The latter case was in an alcoholic patient with enlarged liver and spleen, and when treatment was suspended for a time the sugar rose. Summing up twelve cases, three were benefited temporarily, five were improved permanently, and in four the glycosuria ceased completely. It is interesting to note that in most cases urea and uric acid are increased while liver is taken. Thus, in the case where at first 679 grains of sugar were excreted, the urea, which oscillated between 169¾ and 216 grains before, rose to 247 to 278 grains after treatment, and the uric acid from 3.465 to 4.986 grains in the twenty-four hours. The quantity of urine is unchanged, though some observers have noticed an increase (Vidal, also Mairet and Vires, *Semaine Médicale*, May 5), others a decrease (Jousset). The authors have also experimented on the effect of the extract on diabetes artificially produced in various ways both in men and animals. One deduction is certain,—that the extract lessens the excretion of glucose; whether by increasing the power of storing up reserves of sugar or by causing a more rapid destruction of ingested hydrocarbons remains uncertain. Another question is whether the effect is due to a local stimulation of the organ corresponding to that given (liver), or to a general stimulation of nutrition by means of the nervous system. If the extract acts by stimulating the hepatic cells the other functions besides the glycogenic should be involved. Experiments show that the antitoxic function of the liver is little, if at all, the biliary, but slightly, while the glycogenic and uropoietic functions are markedly influenced. Perhaps this multiple action on the hepatic functions is a proof of a direct action on the hepatic cell, which must be still fairly healthy for the treatment to succeeed.

Formaldehyde as a Disinfectant.

Harrington (*American Journal of the Medical Sciences*, January, 1898) draws the following conclusion from a series of experiments with formaldehyde:

Formaldehyde has extraordinary power as a surface disinfectant, greater than that of any other known substance. It is not, however, absolutely thorough in all cases even as a surface disinfectant, as is shown by the results of the experiments in room-disinfection. Ordinary bacteria, and those of the highest resistance as well, when freely exposed to an atmosphere produced by vaporizing approximately 110 cubic centimetres of formalin in each 1000 cubic feet of space, are killed within two and one-half hours (Experiment VIII). An atmosphere produced by approximately 290 cubic centimetres in each 1000 cubic feet will sterilize ordinary pathogenic bacteria, such as typhoid, staphylococcus aureus, etc., within a half hour, and anthrax in from forty-five to sixty

minutes, and will destroy typhoid protected by an envelope of cotton cloth in one hour, staphylococcus aureus similarly protected within two, and anthrax, also in cotton, within three hours (Experiment VI). An atmosphere of approximately 435 cubic centimetres in each 1000 cubic feet, which would be in the proportion of about a quart to a room fifteen feet square and ten feet in height, will destroy all exposed organisms within a half hour, and others protected as above within an hour and a half (Experiment V).

The penetrating power of the gas depends largely upon the conditions as to moisture. Through dry pervious substances, as cotton cloth, absorbent cotton, hair, etc., it appears to penetrate more or less easily, but not always in sufficient amount to exert germicidal action, as is shown by the results with the tube cultures and flasks of decolorized fuchsin, which are stoppered in exactly the same manner. In the presence of moisture the penetrating power is practically *nil.* The experiments can lead to but one conclusion, therefore, that formaldehyde must be regarded and employed as a surface disinfectant, and can never be anything else, in spite of its power of penetration under favorable conditions. This conclusion is in accord with that of Aronson, Pfuhl, Niemann, Bosc, Roux and Trillat, and Vaillard and Lémoine.

It has been asserted by a number of authors, among them Aronson, Pfuhl, and Rosenberg, that formaldehyde exerts no deleterious action on higher organisms. The results produced by the gas on the two rabbits used in the first experiment were sufficiently certain to demonstrate the falsity of this theory, and to render further experiment on my part in this direction unnecessary. The experience of several others, who are daily engaged in the work of house disinfection, has shown that animals, such as dogs and cats, which have accidentally been confined in rooms undergoing formaldehyde disinfection, rarely survive the operation when the latter is properly carried out. On the other hand, the experience of these same persons is that insects, such as roaches, flies, and bedbugs, are not much affected. My observations in this direction have been limited to the cases of occasional flies, and one dish of cockroaches, all of which were killed.

OBSTETRICS.

UNDER THE CHARGE OF

BARTON COOKE HIRST, M.D.,

ASSISTED BY

W. A. NEWMAN DORLAND, M.D.

Diagnosis and Treatment of Rupture of the Uterus.

Ludwig (*Wiener klinische Wochenschrift*, 1897, Nos. 11 and 12) records nine cases of rupture of the uterus. In the first the rupture occurred during the extraction of a decapitated breech; the head was subsequently removed by laparotomy. In the second the rupture was diagnosed before delivery, and Cesarean section performed. In the third a rupture arose during version; the child was extracted, and the after-coming head perforated. The fourth was a

case of craniotomy, which terminated the labor, after which the rupture was discovered. In the fifth craniotomy was also performed, the rupture not being diagnosed with certainty before birth. In the sixth there was again uncertainty; delivery was effected after decapitation. The last three were all diagnosed; they were delivered by craniotomy, perforation, and cutting through the cervical vertebræ respectively. With regard to diagnosis, Ludwig insists on the valuelessness of individual symptoms, such as collapse, bleeding, sudden and severe pain, recession of the formerly fixed presenting part, cessation of pains, etc. He has found the best diagnostic signs to be (1) in lateral rupture the interruption of the natural contour of the uterine quadrant, either a projection or a nodule being formed; (2) abnormal mobility of the uterus; and (3) emphysematous crackling at the seat of rupture. If the head presents and can be pushed back, bimanual examination under deep narcosis should lead to a certain diagnosis. With regard to treatment, delivery may be effected *per vias naturales*, or by laparotomy. The former is indicated when a large part of the child is already fixed in the pelvis, and also when the diagnosis of uterine rupture cannot be made for certain before delivery. In cases in which the child remains in the uterus after the rupture, or has only partially passed into the abdominal cavity, delivery *per vaginam* is only to be preferred when it can be carried out without losing time or increasing or complicating the tear,—for instance, in head presentations and the absence of contraction of the pelvis, also where rupture takes place during an operation. Laparotomy is indicated when the whole child has passed into the abdominal cavity when the passages are not fully dilated, in contracted pelves, in severe hemorrhages, and in injuries to the neighboring organs. In partial passage of the child into the abdomen, or with a living child still in the uterus, Cesarean section is the correct procedure when natural delivery would take too long, and be fraught with danger to the mother. As regards treatment after delivery, of Ludwig's nine cases, three came into the hospital and were operated on,—two by supravaginal amputation and one by abdominal hysterectomy; all recovered. The remaining six were treated outside; five were operated on,—four by supravaginal amputation, one by abdominal hysterectomy, of which one recovered and four died of sepsis. There was no death from hemorrhage except in the remaining case, which was not subjected to operative interference.

The Principles of Treatment in Puerperal Eclampsia.

The November number of the *American Journal of Obstetrics* devotes considerable space to an article on this subject by Dr. William Warren Potter, of Buffalo, of which the following is the substance:

The treatment of eclampsia may be classified as preventive and curative. The preventive treatment may be subdivided into medicinal and hygienic, and the curative into medicinal and obstetric. If the prodromes and the physical signs, says the author, are recognized early, it is reasonable to expect that hygiene and medicine will correct the errors that are so rapidly tending towards eclampsia. Air, food, and drink must be supplied in ample quantities and of good quality; exercise, active or passive, such as walking, driving, light calisthenics, or massage, must be insisted upon.

In order to limit the source of toxins and to promote their elimination one of the surest ways is to place the woman upon an exclusive milk diet. Water, too, should be freely given in definite quantities and at regular intervals. Dr.

Potter states that distilled water is one of the best diuretics that can be administered to a woman in the eclamptic state. Two quarts a day is not too much, and it may be given still or sparkling. It dilutes the toxins and hastens their exit from the organism.

Constipation also must be prevented, intestinal toxins eliminated, and the intestinal tract kept free. Potassium salts should be avoided, as they favor the production of the intestinal toxins and tend to diminish the red blood-corpuscles, an element that must be conserved. Two other remedies are mentioned by the author as belonging to the therapeutics of the pre-eclamptic condition,—bloodletting and nitroglycerin. If, he says, there is a full artery at the wrist, with a tendency to cyanosis in the pre-eclamptic stage, venesection may be resorted to, and possibly it will be beneficial. One good, full bleeding is permissible, but it should be used with caution in repetition. Its employment, however, is to be feared during an eclamptic seizure. If there is high arterial tension—vasomotor spasm—nitroglycerin in full doses is a valuable remedy. It combats this condition without depleting the patient, and helps to set the kidneys to work.

Concerning the treatment of true eclampsia, continues Dr. Potter, it will be, first, medicinal and, second, obstetric. The first indication in antepartum eclampsia is to control the convulsions, and for this it is better to administer chloral by the rectum; chloroform should be administered rather tentatively in these cases. If the convulsions are not promptly controlled or diminished in frequency or severity by its vigorous and skilful administration he advises emptying the uterus at once of its contents, as he is convinced that a prompt evacuation of the uterus constitutes the most important means of dealing with eclampsia. Several methods are recommended, but in antepartum eclampsia dilatation, first practised with steel dilators, if necessary, then with manual stretching of the os and cervix, will accomplish the work to the best advantage. Exceptionally, however, extreme measures may become necessary, but only rarely can the deep incisions of Dührssen be required. Cesarean section, also, should be reserved for extreme complications. In antepartum eclampsia, after obtaining complete dilatation, it is well to terminate labor at once with the forceps, the patient being under profound anesthesia.

In postpartum eclampsia the treatment must be medicinal. Veratrum viride should be avoided, as it is dangerous, uncertain, and deceptive in its action. It reduces arterial tension and cardiac pressure without exercising any special influence over the progress of the malady. Bloodletting, for similar reasons, should be carefully employed and limited to the few cases of the antepartum variety with a plethoric habit and cyanosis.

Dr. Potter calls attention to a variety of eclampsia,—namely, that of pregnancy as distinguished from eclampsia appearing just before, during, or after delivery, which, though representing the most dangerous variety, nevertheless is one in which there is more time for deliberate action. It is here, too, that medicinal treatment offers better promise, and the question of evacuating the uterus may be deferred until the other plan manifests failure or inadequacy. The induction of premature labor may be tried in these cases. In a few hours labor will set in and can then be terminated rapidly if occasion should so demand. To promote the elimination of toxic material, the value of diuresis, catharsis, and diaphoresis should not be forgotten; the hot-air bath and the hot pack also should not be overlooked, although these are impracticable during the convulsions.

Dr. Potter states that his object is to present practical experience and to advocate principles which he groups under the following heads:

(1) Though the pathogenesis of eclampsia is unsettled, it belongs solely to the pregnant or puerperal state. It is not apoplectic, epileptic, or hysterical in character.

(2) It depends upon toxemia due to over-production of toxins and under-elimination by the emunctories.

(3) These toxins probably have their origin in the ingesta, in intestinal putrefaction, in fetal metabolism,—one or all,—and there is coexisting sluggishness, impairment, or suspension of elimination.

(4) When the prodromes of eclampsia appear the kidney should be interrogated as to its functions and all symptoms carefully watched.

(5) Treatment is (*a*) preventive and (*b*) curative. Preventive treatment is medicinal and hygienic; curative treatment is medicinal and obstetric.

(6) Milk diet and distilled water should be given in the pre-eclamptic state to dilute the poison, hasten its elimination, and nourish the patient.

(7) Bloodletting should be employed only in plethora or cyanosis. It is apt to cause anemia if persisted in or repeated, whereas red blood-corpuscles must be conserved, not wasted. Nitroglycerin diminishes vasomotor spasm, hence it may be given freely in appropriate cases. Veratrum viride is a cardiac depressant and a dangerous remedy if pushed to an extent that will control convulsions.

(8) Eclampsia is the expression of a further maternal intolerance of the fetus; hence, as a primal measure, the uterus should be speedily emptied of its contents.

(9) Medicinal treatment alone is delusive, and when relied upon exclusively is fraught with danger, both maternal and fetal, whereas in the prompt induction of labor is found a rational application of science to a desperate condition.

(10) Finally, it furnishes, in the present state of our knowledge, the only basis of expectation for a diminished mortality in a toxemic disease of high death-rate.

GYNECOLOGY.

UNDER THE CHARGE OF

CHARLES BINGHAM PENROSE, M.D.,

ASSISTED BY

H. D. BEYEA, M.D., AND H. L. WILLIAMS, M.D.

Application of Steam within the Cavity of the Uterus.

Pitha (*Centralblatt für Gynäkologie*, No. 22, 1897) reports the result of the use of steam in the uterine cavity upon forty-six patients treated in Pawlik's clinic during the past two years. Examination was also made of six uteri which were removed within a period of two weeks after the application of

steam, although he fails to state whether the subsequent hysterectomy was made necessary by the operation.

Steam is passed within the cavity by a simple appliance which he describes, narcosis being unnecessary, for a period of one minute. Sloughing occurred, but was not complete until about the end of the second week. Regeneration of the endometrium was complete at about the end of the fourth week.

Twenty-eight patients with hemorrhagic endometritis were treated and cured by this method. Also ten cases of hemorrhage following abortion, in which, however, decidual remains were first curetted away before steam was applied.

The advantages which he claims for this operation are the rapidity and ease with which it can be performed; the immediate hemostatic effect; the deep slough which it causes; the freedom of the operation from danger, and that anesthesia is unnecessary.

Among the disadvantages are the inequality of the sloughing areas, and that the after-treatment is prolonged. He is not prepared to recommend it in preference to curetting.

Etiology and Treatment of Carcinoma Uteri.

Barcher (*Archiv für Gynäkologie*, Band liii, Heft 1) concluded from an analysis of 705 cases that—

(1) The true origin of malignant disease of the uterus is as yet unknown, and that it cannot be referred to specific micro-organisms.

(2) That endometritis, usually of puerperal origin, is the indirect cause, in that it furnishes a suitable nidus for its development. In nearly every case of cancer a chronic catarrh of the lining mucous membrane is present, endometritis being the primary condition and malignant degeneration secondary, which emphasizes the great practical importance of active treatment of endometritis from the first as a prophylactic measure. He considers that carcinoma of the cervix should be treated by total extirpation in preference to high amputation, for when the corpus uteri is left behind the usually attendant chronic endometritis furnishes a favorable medium for the development of cancer, even if it is not already present.

Congenital Absence of the Vagina.

Latouche (*Archives provinciale de Chirurgie*, 1897, No. 4; *Centralblatt für Gynäkologie*, No. 43) describes the case of a young woman of 19, fully developed, with well-formed external genitalia, but who had no vagina. In the place of the vaginal opening only a small depression could be found. The mucous membrane appeared of a pearly whiteness, and presented the appearance as if thick membrane closed the vagina. By a combined examination through the rectum it was demonstrated that the uterus and appendages were entirely wanting. Latouche then made a transverse incision, and with a blunt instrument penetrated in an upward direction between the rectum and the urethra, a distance of eight centimetres, where he was obliged to stop, in order not to penetrate the peritoneal cavity. He then tamponed the opening, and thought by long-continued tamponage, and holding the wound open by means of the introduction of specula, to establish a serviceable vagina.

He holds that this operation should be performed even if no uterus is

present, and no retained menstrual fluids require evacuation, for the sake of the mental impression upon the patient, as well as when she can be rendered normal by the operation. For when this is not performed, as so frequently happens, coitus will be performed through the urethra.

Regeneration of Endometrium after Cauterization.

Jung (*Centralblatt für Gynäkologie*, No. 18, 1897) describes a case where hysterectomy was performed four months after thorough cauterization with chloride of zinc, from which several points of value were demonstrated on microscopic examination. Curettement was first performed, followed later by application of chloride of zinc; and as obstinate hemorrhage still continued, the uterus was removed. On microscopic examination superficial epithelium of the endometrium was found renewed over small areas, though the mucous membrane still retained its hyperplastic condition, showing the almost inexhaustible power of regeneration possessed by the endometrium.

Werth shows by microscopic examination that the connective tissue regenerates from that of the myometrium, being converted as early as the tenth day into normal mucosa stroma; while the glands regenerate from the epithelium of the heterotopically placed glandular extremities which remain embedded in the myometrium. The blood-vessels regenerate with equal rapidity, being found as early as the fifth day.

Transmission through Tubes of Liquids administered by Intrauterine Injection.

Doderle (*Centralblatt für Gynäkologie*, No. 25, 1897) reports six experiments performed by him in cases upon which he was about to perform hysterectomy.

Solutions of methylene blue, iodine, and chloride of zinc were injected within the uterine cavity, after the cervix had been thoroughly dilated. A return current was properly maintained, and only moderate pressure used, but in each case, with one exception, where a fungoid endometritis was present, the fluid passed through the tubes and into the peritoneal cavity.

Döderle considers that the experiments throw light on the subject of tubal menstruation, and the extension of gonorrheal infection. He also demonstrated that the facility with which liquids pass through the tubes into the peritoneal cavity should lead to the greatest care in the employment of all intrauterine treatment.

PATHOLOGY.

UNDER THE CHARGE OF
JOHN GUITÉRAS, M.D.,
ASSISTED BY
DAVID RIESMAN, M.D.

Etiology of Infective Endocarditis.

Kanthack and Tickell (*Edinburgh Medical Journal*, July, 1897) publish an article on this subject, based on an analysis of all the fatal cases which were observed in St. Bartholomew's Hospital from January, 1890, to March, 1897, and subjected to a necropsy. These amounted to eighty-four. The writers very properly insist that the term "infective" should be used and not "malignant" or "ulcerative." The question always is, Are the vegetations due to bacteria or not? Micro-organisms may cause acute endocarditis without ulceration, and, conversely, ulceration may be found in their absence. In all but ten cases either old cardiac disease or an inflammatory infective lesion accompanied the endocarditis. Of these ten cases malignant disease existed in four, and a possible pneumonia in one, so that only five cases can be considered as uncomplicated. Old cardiac disease was present in fifty-four cases (64 per cent.), sixteen of which were accompanied by a recognized infective process,—viz., pneumonia in seven cases, pyogenetic process in four, empyema in one, vaginal and uterine disease in two, bronchiectasis in one, and influenza in one. Of the remaining thirty cases in which old cardiac disease was absent an infective process was discovered in twenty, which either preceded or accompanied the endocarditis,—viz., pneumonia in five, pyogenetic process in six, empyema in one, vaginal and uterine disease in two, otitis in three, tubercle in two, and typhoid fever in one. Of all acute diseases pneumonia is most frequently complicated with endocarditis. The writers found an antecedent pneumonia in 14 per cent. of all the cases. Where the pneumonia is croupous the pneumococcus is the cause of the endocarditis, and seems to be attracted and arrested by a pre-existing cardiac lesion. Endocarditis is by no means common in typhoid fever. When it occurs, either streptococci and other pyococci or typhoid bacilli have been found in the heart's blood. Similarly, in those rare cases of infective endocarditis occurring in diphtheria or gonorrhea, the Klebs-Löffler bacillus or Neisser's coccus may be present, or streptococci and other pyococci. In one case there was a tuberculous endocarditis. Mixed infections are common in all these cases. Therefore, when an endocarditis complicates an infective fever it may be (1) homologous, (2) heterologous, or (3) mixed infection of the endocardium.

The Direction in which Cancer of the Breast spreads.

Gerota (*Centralblatt für Chirurgie*, September 4, 1897) has made investigations to determine the course of secondary infection from cancer of the breast. He finds that the lymph-vessels are intimately associated with the branches of the internal mammary artery. This explains the occurrence of the

infection of the retrosternal glands and the early adhesion of the pectoral muscles; and further, the occurrence of secondary nodules in these muscles. He also found that the glands of the thorax do not have independent sets of lymph-vessels, but that these are in intimate relation with one another, which explains the spread of cancer from the right side to the left side, or the reverse.

Osteoarthritis caused by Pneumococci.

Arthritis, due to the presence of pneumococci in the joints, is now one of the recognized complications of pneumonia. At a recent meeting of the Société Médicales des Hôpitaux of Paris Dr. Fernet (*Lancet*, December 11, 1897) called attention to a peculiar form which differed entirely from the ordinary and purely articular. Only two cases had been observed and the sterno-clavicular joint was the one attacked in both. The onset was sudden and attended with severe pain, considerable swelling soon followed, but redness was slight or absent. The swelling was not due to effusion into the joint (as demonstrated by puncture), but to edema of the periarticular cellular tissue. The articular surfaces were rapidly eroded, so that crepitus like that of a fracture was soon felt, as early as the thirteenth day in one case. Dr. Fernet regarded this sign as characteristic. The duration of the disease was long because fibrous ankylosis, the natural termination, took some time to develop. In one case it was more than two months. The treatment followed was immobilization of the joint. The other case terminated fatally at the end of three weeks. A necropsy was made. The periarticular cellular tissue was infiltrated with serum; the muscles looked uneven and pale and showed purulent striæ; the ligaments and cartilages were completely destroyed; the articular surfaces were represented by rugged surfaces of spongy bone. There was no effusion in the joint, and a few drops of serous fluid were obtained with difficulty which yielded pure cultures of the pneumococcus. In this case there was also pulmonary and meningeal infection. Dr. Fernet called attention to the analogy of the osseous lesions to those observed in the arthropathies of locomotor ataxia both in their nature and clinical evolution, and suggested that possibly the latter was also due to a microbial cause favored, perhaps, by trophic defects.

Cholecystitis in Enteric Fever.

Dungern (*Münchener medicinische Wochenschrift*, June 29, 1897, and *British Medical Journal*) first observes that mixed infections are very important in enteric fever, but that the typhoid bacillus may unquestionably be the cause of some complications. Severe complications involving the biliary passages are rare in enteric fever, and here the typhoid bacillus itself is very frequently the cause. As a result of the penetration of the typhoid bacillus into the gall-bladder gall-stones may ultimately occur. The author is only acquainted with four cases of cholecystitis with or without calculus-formation in which the typhoid bacillus was the cause. He gives short details of these four recorded cases, and adds the following one: A woman, aged 46 years, had typhoid fever fourteen and a half years previously. Nearly five years afterwards she had attacks of pain accompanied by vomiting, but without jaundice. During the next one or two years she had many attacks, but then remained quite free

from them for six years. The attacks then recurred, and a hard swelling was felt in the region of the gall-bladder. This swelling was cut down upon by Kraske, and an abscess was opened, and 150 cubic centimetres of brownish-yellow pus evacuated. The pus was not bile stained. Any connection of the abscess with the gall-bladder was not vigorously sought for. No gall-stones were found, but occasionally the discharge was stained with bile. The typhoid bacillus was found in the pus in pure culture. It was submitted to all the ordinary tests and gave the serum reaction. It is most probable that the typhoid bacillus penetrated into the gall-bladder at the time of the enteric fever, but the interval of five years before the first attack of biliary colic is striking. In the last year of the six years' interval the patient suffered from a periostitis of the lower jaw, which may also have been due to the typhoid bacillus. If the above suppositions are true, the typhoid bacillus retained its vitality for fourteen and a half years. The patient's blood produced immobilization and agglutination in typhoid bacilli. The typhoid infection has been known to involve the biliary system even without any intestinal lesion. The author then refers to the bacillus coli communis, and its relation to suppuration; this micro-organism may even produce a disease not unlike enteric fever. The typhoid bacilli from the author's case proved themselves to be virulent when injected into animals, but the virulence was slight.

The Conditions found more than Two Years after Ligation of the Large Vessels of One Side of the Neck.

Thomas (*British Medical Journal*, August 21, 1897) reports the conditions found in the case of a man, 65 years old, who two and a quarter years previously had cut the internal, external, and anterior jugular veins, as well as the common carotid artery, in an attempt at suicide. At the time hemorrhage was controlled by clamping and ligation; secondary hemorrhage occurring, it became necessary to ligate the internal and external carotids. The patient recovered and resumed his occupation as a house-painter. This he followed for nearly two years, when he came under observation again on account of severe cough and pain in the right chest. The temperature was high and expectoration copious. Rapid failure took place and death ensued.

Upon post-mortem examination, the blood-vessels forming the circle of Willis appeared normal. The last half inch of the internal carotid artery was hollow, while the portion in the cavernous groove was represented by a fibrous cord. Upon the left side, the sterno-mastoid muscle was entirely replaced by cicatricial tissue. The common carotid trunk was small and terminated abruptly five inches from the arch of the aorta in a mass of scar-tissue, there mingling with the cut ends of the pneumogastric, sympathetic, and some cervical nerves. (The phrenic nerve was normal.) Above this fusion nothing but the two nerves (vagus and sympathetic) and a small artery could be found. This artery, not so large as a normal facial, came down from above and gave off the small facial, lingual, and superior thyroid, and was the sole representative of the external carotid. No trace of the internal carotid or of the internal jugular as far as the base of the skull could be found. The inferior thyroid artery was smaller on this side, but the left vertebral was half as large again as its fellow. This, in fact, appeared to be the only special provision made for collateral circulation. The deep cervical artery was much smaller on this side. The left lung was normal, and, therefore, had not suffered from inter-

ference with the pneumogastric and sympathetic nerve. Upon the right side the common carotid artery seemed slightly larger than normal, but the superior thyroid, the lingual, the facial, and the inferior thyroid were apparently not enlarged. In the right lung some pathologic changes, with a collection of pus, had caused death.

The conditions present illustrate how little reliance can be placed upon the theoretic collateral circulation laid down in the text-books, based on ordinary anatomic anastomosis, for with the exception of the enlarged left vertebral artery and some little enlargement of the right common carotid, all the other arteries were not only no larger, but were actually smaller; even the deep cervical artery was considerably smaller than its fellow of the opposite side.

The Fertility of Twins.

"The first and father-cause of common error," says Sir Thomas Browne, "is the common infirmity of humane nature," but a no less potent cause is "the credulity of men who give an easy assent to what is obtruded, or a believing at first ear what is delivered by others." All vulgar errors appear to contain a germ of truth though it is often concealed and overlaid by a luxuriant growth of the popular imagination. The examination of vulgar errors is therefore as necessary as it was in the time of Sir Thomas Browne, and it is no less interesting. There is a wide-spread idea that of twin sisters both never become mothers. The germ of truth in this statement was known even to Pliny, who says, "If a woman bring twins, it is a great good-hap if they all live, but either the mother dieth in childbed, or one of the babes, if not both. But if it fortune that the twins be of both sexes, one male the other female, it is ten to one if both of them escape." Indeed "a left twin" is one of the commonest objects among the poorer classes to this day, where it is spoken of with bated breath. Arrived at maturity twin sisters are supposed to be sterile, but upon quite insufficient grounds. There are undoubted cases where both girls have married and have had large families. The error seems to have arisen from too limited an observation upon the part of farmers who have applied what is partially true of cattle to what is quite untrue of their own offspring. In cattle, twin ewes always breed, unless one is an hermaphrodite, whilst in the case of calves, when one is a bull and the other a female, the latter hardly ever breeds, but grows up like an ox. Such a cow-calf is well known to breeders as a "free-martin," and it presents evidence of marked imperfection or malformation of the genital organs. There is no doubt in the mind of any one that twin brothers, like twin bulls, are perfectly virile, and there is no reason to suppose that twin sisters, otherwise healthy and well formed, are not equally apt to conceive.—*Lancet.*

CORRESPONDENCE.

INGESTION OF EXTRACT OF CANNABIS INDICA.

DR. H. C. WOOD, University of Pennsylvania, Philadelphia, Pa.:

DEAR SIR,—I have repeatedly read with much interest the account, in various editions of your work on "Therapeutics," of your experience following the ingestion of an American extract of cannabis indica.

As supplementary to this, in a measure, I should like to submit my own experience after taking some extract of English manufacture.

Having had only a light lunch at 1 P.M., I took at five o'clock three grains of the soft extract in a gelatin capsule. I noted carefully any unusual sensations during the following hour, and can remember the major portion of the next three hours' occurrences. For half an hour there was nothing unusual to record. At 5.30 a barely perceptible headache was noticed, dull in character, and lasting about fifteen minutes. At this time, 5.45, I noticed that I was longer in comprehending anything said to me. Quite a perceptible interval elapsed (or so it seemed) before even simple statements were clearly comprehended, and answering speech seemed also slower than usual. At 5.50 I was writing, and on finishing a sentence there was a slight spasmodic contraction of the muscles of the hand and arm, causing an impairment of the symmetery of the writing. This spasm seemed a signal for the precipitation of a storm of nervous phenomena. I looked at my hands, and the fingers appeared enormously long and large. Speech was somewhat confused, words being transposed chiefly, there being also hesitation in the choice of words. The pulse, which had not been previously noticeably affected, became suddenly very rapid and full. The rate was 100 at one time and a minute later 120, the heart thumping like as if I had rapidly climbed a flight of stairs. Before six o'clock was reached I had become nearly blind, periods of almost complete darkness following each other at short intervals. When speaking to a person and looking at him steadily, or on looking closely at any conspicuous object, I could see them clearly enough, but all else was darkness.

At the beginning of these phenomena—at 5.40 to be exact—the muscles of the back and neck, particularly those attached to the occiput, became contracted tonically and painfully. This was for some time the most pronounced sensation. By active friction over the muscles the spasm relaxed and the pain was relieved temporarily.

All along the spine the muscles contracted, causing a marked curving of the body backward. At this time I began to have a sense of dual existence. I was aware that the experience through which I was passing was my own, yet I had the sense that I was watching the experience of another. This impression deepened as time went on, and after a while it was only by the most violent effort of will that I could bring myself to a realization that these sensations and occurrences were in the regular course of events, and that I was not merely a witness of them. I walked out in the air at six, and while objects seemed far away which were really near and there was an apparent darkness much greater than the real, there was no unsteadiness of gait and I noticed everything that was transpiring. Shortly after this (a few minutes past six) I walked to the house of a physician, whom I knew, a half block away, and climbed a flight of a dozen steps without difficulty. While speaking to the doctor a minute later, however, I tried to walk towards him and stumbled, falling nearly, and grasped his shoulders. Lying down then, I became mostly unconscious, but was able to bring myself to a realization of my surroundings by violent effort of will, but almost at once returned to my illusions. Before I became unconscious I noticed to some extent the prolongation of time. The doctor was a little alarmed at the symptoms I presented (unnecessarily, I thought), and as I had told him just what I had done, he began looking up the subject of cannabis in his books. I noticed the leaves turn and they seemed enormously long in falling. His movements were slow to a patience-destroying point, and he seemed ten minutes in crossing the room. One of the most noticeable things after lying down was a sense of fulness in the abdominal blood-vessels. The abdominal aorta seemed full to utmost distention, and I recall a fear lest it should burst; the sense of fulness was extremely painful. The heart action was very rapid now (6.15 or 6.20). I was at no time fearful of a fatal result. The light on the ceiling above me was scintillating and formed soon a part of my subsequent sensation. For about an hour after this I could recall nothing of what transpired, except some violent efforts at raising me and commands to drink some mustard-water and coffee, which was prepared for me. After 6.30 my sensations were vitiated by an emetic given me by the physician, under the impression (which I consider erroneous) that it was necessary, and some hypodermics of brandy and ammonia, which he thought I needed. At about 7 P.M. I "came to" with some suddenness, but was a little dazed for some hours. At eleven I went to sleep, and awoke as usual in the morning feeling no effects from my experience; in fact, not remembering it until something called it to mind after rising. There was no sensation in the whole experience which I should call

pleasant, nothing that would suggest a desire for its repetition. The only vital function notably disturbed was the circulation. The breathing was apparently normal throughout. No effect was produced on the digestive apparatus. After some hours the secretion of urine was markedly increased. I noted no effect on the skin. I have a hypersensitive spinal nervous system. To this I largely attribute the marked effect on this part of the nervous system in my case. I thought the reflex excitability was somewhat increased during the several days succeeding. The heaviness of the limbs before sleeping, which you mention, I experienced, though in less marked degree, for the few hours after I became conscious and before sleeping, movements were very sluggish and there was a decided indisposition to exertion of any kind. During this time all surroundings seemed in a hazy, not wholly real, condition, consciousness not being perfect, and I readily relapsed into a dozing state, being nearly asleep, but conscious of what was going on and hearing and comprehending all that was said. If there are any points that I have omitted to mention and that you might consider of value to you if detailed, I will cheerfully answer any inquiries which it may occur to you to make.

Very truly,

ROBERT C. BICKNELL, M.D.

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BOOK NOTICES.

A SYSTEM OF PRACTICAL THERAPEUTICS. Edited by HOBART AMORY HARE, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia, etc. Vol. iv. Philadelphia: Lea Brothers & Co., 1897.

The purpose of the present volume is to give the modern practice of therapeutics so far at least as it has undergone any changes or advances since the previous volumes were issued, five years ago. The editor has wisely decided to bring to the notice of his readers the personal methods of the various contributors to the volume rather than discuss every plan of treatment which has been introduced or suggested. There are twenty-eight contributors on thirty-one subjects. It is impossible to review each article; and, indeed, it is unnecessary, for the original three volumes are very well known to the reading portion of the profession, and the present volume comes fully up to the high standard of excellence set by them. The article on

Diseases of the Heart, by F. P. Henry, is noteworthy for two reasons; in the first place, he discusses the Schott method of treating heart-diseases so clearly, giving the proportions of saline ingredients suitable for a bath of forty gallons, that it becomes possible for the physician to carry out these baths in the homes of his patients; and in the second place, he is the first writer in an American text-book to give adequate attention to heart-disease as it is complicated by pregnancy. His discussion of the subject is fair and moderate. He should, however, have made it plainer that the condition most to be dreaded is dilatation of the heart.

Perhaps the most important article in the volume is that upon Diseases of the Thyroid and Thymus Glands, Myxedema, Cretinism, Graves's Disease, and Obesity, by S. J. Meltzer. The subjects are discussed admirably, though very briefly. There are copious references to the literature of these relatively new subjects, but the author's own opinions are not obscured thereby; on the contrary, they are given with refreshing frankness.

The editor deserves our thanks both for the three articles which he has written and for the excellent judgment displayed in the selection of contributors to the volume.

A Hand-Book of Medical Climatology. Embodying its Principles and Therapeutic Application, with Scientific Data of the Chief Health-Resorts of the World. By S. Edwin Solly, M.D., M.R.C.S., Late President of the American Climatological Association. Illustrated in black and colors. 8vo, pp. 465. Philadelphia and New York: Lea Brothers & Co., 1897.

The knowledge of the medical climatology of America has hitherto been in a very incomplete state. Here and there a few spots have been studied with considerable care, and no doubt a few men may be said to be fairly well acquainted with the climate of the entire country; but the great majority of physicians know little about the therapeutic value of the various health-resorts of America, and still less of the principles which underlie medical climatology. These lamentable deficiencies have less excuse for their existence year by year; and since Dr. Solly's book has appeared any physician who takes the necessary pains may inform himself both as to the principles of climatology and the special climatic advantages of particular health-resorts. Dr. Solly has laid the medical profession under great obligations to him. We hope the book will be as widely read as it deserves to be. The first section of the book is devoted to the principles of medical climatology, and covers 70 pages; the second section treats of the therapeutics of climate in relation to disease, covering 111 pages; the third section is given to a description of special climates as typified in selected resorts, and includes comparative and other tables of great value. This section is naturally the largest, comprising 276 pages.

TUBERCULOSIS OF THE GENITO-URINARY ORGANS, MALE AND FEMALE. By N. SENN, M.D., PH.D., LL.D., Professor of Practice of Surgery and of Clinical Surgery, Rush Medical College, Chicago, etc. Philadelphia: W. B. Saunders, 1897.

The subject of which this book treats has been much neglected in the past, and surgeons generally will welcome Dr. Senn's effort to place before the profession a *résumé* of our present knowledge of this particular form of tuberculosis. The general recognition of urogenital tuberculosis is a matter of recent date, and the observations up to this time have been comparatively few, and many of these are so incomplete that the data for critical study of this subject are not yet at hand. This work furnishes a reliable and satisfactory working basis, however, and it is hoped that in the future the disease will receive the careful study that its importance demands. For the discrimination of this class of tubercular affections it is necessary, in addition to the more common methods of diagnosis, to bring to our aid the methods of bacteriology and histology. The author believes that a large proportion of the cases that have been called carcinoma were really examples of tuberculosis. Dr. Senn states in the preface that the medical and surgical therapeutics of the affections of which this book treats are at this time not in a satisfactory state. The same statement might be applied to other aspects of the disease than that of treatment.

The work includes the opinions of surgeons of large experience throughout the world as well as those of the author, and represents the latest teachings on a subject of the greatest importance and one heretofore almost completely neglected.

PATHOLOGICAL TECHNIQUE. A Practical Manual for the Pathological Laboratory. By F. B. MALLORY, A.M., M.D., Assistant Professor of Pathology, Harvard University, and J. H. WRIGHT, A.M., M.D., Director of the Laboratory of the Massachusetts General Hospital. With 105 illustrations. Philadelphia: W. B. Saunders, 1897.

The first section of this latest hand-book for the laboratory deals with post-mortem technique; the second with bacteriological apparatuses, examinations and clinical bacteriology, and the third, by far the longest and most important, with histological methods. This last includes divisions upon Laboratory Apparatus, Examinations of Fresh Material, Fixing, Embedding, the General and Differential Stains, and closes with articles upon the Blood, Nervous System, and Clinical Pathology.

The book is intended, as the authors say, for "practical use in pathological laboratories and as a means of reference for the advanced." As such it can be heartily recommended. It is a pleasure for those of us who have worked out many small problems and diffi-

culties in the laboratory to see these very points dealt with in a practical way, and one reaps the benefits of the authors' careful work.

In point of excellence we should be inclined to put the section upon histological methods first, that upon post-mortem technique next, and the bacteriological division last, not that its matter is at fault, but because the subject cannot be treated satisfactorily from any stand-point in the 150 pages allotted to it. The section upon histological methods is almost wholly admirable, and it is a pleasure to allude to the satisfactory articles upon Embedding, Cutting, Fixing, Staining, and Clearing Solutions.

The reader wonders why all reference to the thionin stain is omitted. In Philadelphia laboratories at least it has grown to be almost indispensable in all branches of histological work. And why is such a reliable solution as borax carmine not mentioned?

The article on Post-Mortem Technique is perhaps the only one in which the influence of the authors' personal experience is not felt. The heart is to be removed from the body before any examination is made of it or its vessels. It would seem as if there was danger of sacrificing many aortic aneurisms by such a procedure. It is a pleasure to see the attention paid to the unreliability of the so-called hydrostatic test for the computing of the semilunar valves. But any one who has had experience in securing the calvarium in place cannot approve of the almost total neglect of this trying and difficult procedure.

The publisher's work is excellent, and the illustrations are pertinent and largely original. The book is probably the best yet published for the American laboratory.

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MORPHOLOGY OF LEUKEMIC BLOOD.[1]

By George Dock, A.M., M.D.,

ANN ARBOR,

Professor of Medicine in the University of Michigan.

Attempts at improving our knowledge of the finer changes in the blood in leukemia are warranted by a number of reasons. One of the most important is the difference of opinion regarding the dependence of the character of the blood on alteration of one or other blood-forming organ. Few still believe that from the composition of the blood a positive diagnosis of the organs diseased can be made, but other equally important points are still the subjects of great uncertainty. We have in mind especially the relation of so-called myelogenic or myelo-lienogenic to lymphatic leukemia. Some understand under the latter term a condition associated always with marked enlargement of lymphatic glands; others understand a peculiar condition of the blood, associated especially with an increase of small mononuclear cells. The question of the relation of acute to chronic leukemias is intimately associated with the one just mentioned, because it has been claimed that acute leukemia is always, or almost always, characterized by a lymphemia or, to use a better word, lymphocythemia.

Our imperfect knowledge of the origin of the leucocytes is the greatest obstacle in the study of leukemia. There is a growing belief in the development of the various kinds of leucocytes from a small round cell,—a belief that to a certain point has much in its favor. On

[1] Read before the Section of Internal Medicine at the Twelfth International Medical Congress, Moscow, September 24, 1897.

the other hand, we cannot believe that all varieties of colorless blood-corpuscles are due to such a process. The eosinophile cell, for example, may be produced in any one of a number of different organs or tissues and enter the blood circulation. We must therefore believe that, at least partly, the blood is "the representative of all the organs." (Weiss.)

When we examine minutely the blood in leukemia, in a large series of cases, we find certain striking differences. It seems reasonable to suppose that these differences in the blood are associated with differences in the anatomical changes in the organs, not, as was originally supposed, as regards seat only, but as regards the histological alterations.

In chronic leukemia the conclusions of a large number of observers coincide in the view that the most striking characteristic of the blood is the polymorphism of the cells, especially the leucocytes. Along with cells which differ from ordinary leucocytes only in size, we also find cells such as are normally found only in bone-marrow,—eosinophile cells, sometimes very large or very small, and with simple round or oval nuclei; cells of similar size and shape, but with neutrophile granules in the protoplasm; also nucleated red blood-corpuscles. Sometimes mitoses are found, rarely in the red, more frequently in the white corpuscles. When such blood is allowed to stand for a short time Charcot's crystals form, or they may appear in blood dried at once after leaving the body, as Westphal has described, and as I have seen in one case. That these characteristics, already noted by others, occur in the majority of cases of chronic leukemia, I claimed four years ago,[1] and in a large number of cases observed since then—thirteen in my own clinic—I have confirmed this belief. But cases otherwise apparently similar may have blood of a very different character. E. Neumann was the first to emphasize this point, but as his observations were made before the use of color-analysis, his views have not received as much attention as they deserve. Cases apparently similar have been studied, with the use of staining methods, by Askanazy, Lenhartz, and others. The interesting case mentioned by Grawitz in his monograph seems to me to represent still another variety. I have in my possession preparations which appear to be identical with those of Grawitz, but different from those I describe below. The examination of the tissues has not yet been made.

I wish at present to call attention to a case of chronic leukemia with an increase of only small mononuclear cells in the blood, in

[1] "Chloroma and its Relation to Leukemia," American Journal of the Medical Sciences, August, 1893.

which the period of time during which the blood was examined and the opportunity for examining the tissues post mortem seem to furnish important data for the study of leukemia.

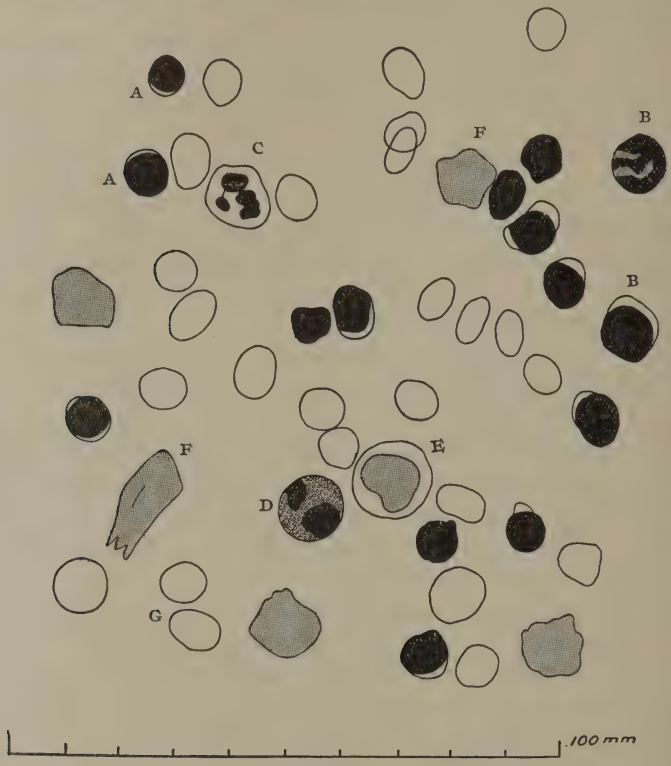
The patient was a man of 52 years, who was never sick until, at the age of 48, he had influenza. He never recovered his health after that, but remained pale and weak. Two years later he discovered a tumor in the left side. This persisted, slowly growing larger, and with this marked dyspnea developed.

I first saw the patient a year and a half after he discovered the tumor. He was pale, dyspneic, had slight edema of the ankles. The spleen and liver were much enlarged, the former reaching from the eighth rib in the axillary line to the middle of the left rectus muscle and to the left iliac fossa; the liver extended to the level of the umbilicus. The lymphatic glands were not greatly enlarged, those in the axillæ and inguinal regions being easily palpable. The patient complained of spontaneous pain in the sternum, in some of the ribs, and in the tibiæ, and stated that at times painful swellings developed over the lower part of the tibiæ.

The blood was pale and watery. It showed 1,925,000 red blood-corpuscles and 312,500 leucocytes per cubic millimetre; Fleischl 40 per cent. Almost all of the leucocytes were small, having the size and appearance, in the fresh blood, of small lymphocytes, rarely exceeding the diameter of average red corpuscles. In the dried blood, as can be seen in the figure, they have diameters of from four to ten microns, most of them six to eight microns. The round nuclei take nuclear stains readily, and when stained appear often to be fragmented, being composed of segments of irregular size and number, separated by narrow fissures. (The figures do not show these.) Eosin makes the fissures more distinct. With Ehrlich's neutrophile mixture the fissures appear as brown lines, suggesting at first the idea of granules, but with the best lenses (Zeiss' apochromatic included) the granular appearance is only apparent. Not all the nuclei are fragmented in the manner described, and one can pick out a series from the smaller cells resembling normal lymphocytes, through larger forms with more and more definite fragmentation. The protoplasm of these cells is very scanty. In the smallest cells it is difficult to demonstrate, but is more developed in proportion to the size of the cell, sometimes forming a complete ring, at other times only a crescent-shaped band. The protoplasm sometimes contains fine, rarely coarser, basophile granulations (methylene-blue). These cells, including those up to ten microns in diameter, with deeply-stained nuclei, make up from 97 to 99 per cent. of all the well-preserved leucocytes in the blood. (In my counts I have used from 1000 to 1600 cells each day.) There are a few cells

of similar appearance, but with slightly more protoplasm and with larger nuclei. The nuclei of these cells are also fragmented in the same way, and stain not quite so deeply as the smaller ones.

Multinuclear cells with neutrophile granules, in all respects like the similar cells in normal blood, are present in the proportion of ½ to 1 per cent., only once being as high as 1 per cent. There was, therefore, an absolute decrease of these cells, the number per cubic



Chronic leukemia, showing blood-corpuscles in a single field, except the neuclocyte, which was added from another part. A,A, small lymphocytes; B,B, large lymphocyte; C, polymorphnuclear; D, eosinophile; E, mononuclear neutrophile; F,F, degenerated leucocytes; G, red corpuscles.

millimetre being usually less than 3000. Eosinophile cells, always of normal size and with polymorphnuclei are never more than one per thousand, sometimes only one in three or four thousand leucocytes. Leucocytes with round or oval nuclei, and with neutrophile granules (Ehrlich's "Markzellen") are present in the proportion of from one to five per thousand. Nucleated red blood-corpuscles—normoblasts—are present in the proportion of about one per thousand leucocytes.

The blood always contained large numbers of degenerated leucocytes, recognizable only in stained preparations. It is possible that some of these were overlooked in the counts of the fresh blood. These cells have swollen bodies, sometimes with irregular outlines, or with the appearance of vesicles along the edges. They stain less deeply than well-formed cells, but there are, as regards staining, many transition forms. The plainly degenerated cells have a proportion to all those that stain well of from 6 to 30 per cent. The latter proportion was found only once in counting 1700 cells, the number being usually less than 20 per cent. Almost all of these can easily be recognized as derived from the small round cells, but there are also a few degenerated polymorphnuclear, eosinophile, and mononuclear neutrophile cells.

The patient was under observation four months, and died after an attack of influenza with broncho-pneumonia. In the last illness the condition of the blood was not altered. In the preceding four months the blood was examined weekly, fresh and in cover-glass preparations. Charcot's crystals were looked for each time in blood preserved in capillary tubes and in the moist-chamber. They were never found. The coagulability of the blood was diminished.

There was a gradual improvement in the blood in the beginning (the patient was taking arsenic and Armour's extract of red bone-marrow). Then the condition became worse, so that a week before death, and just before the influenza, the blood showed 1,542,000 red, 580,000 white corpuscles, hemoglobin 30.

Post mortem, besides the extensive broncho-pneumonia, the most important changes were as follows:

The spleen weighed 1170 grammes; capsule wrinkled and in some parts thickened; the cut surface anemic, the Malpighian bodies large, from three to five millimetres in diameter; the parenchyma dark, grayish red, the trabeculæ not marked. The liver weighed 2200 grammes; pale; cut surface bloodless, slightly granular; acini distinct; no macroscopic lymphomata. The kidneys were slightly enlarged; pale; the cortex relatively narrow. The mesenteric glands not enlarged. The retroperitoneal glands large, up to one and a half centimetres in diameter, moderately hard, pale on section. The only superficial glands enlarged were those in the inguinal regions. Some of these reached a diameter of one-half centimetre. These were also hard; on section showing red areas alternating with pale and gelatinous ones. The ribs, vertebræ, sternum, and shafts of the tibiæ contained dark-red marrow of moderately firm consistence, resembling normal spleen tissue. The tibiæ, at the seat of the old swellings, showed neither thickening nor sclerosis. The periosteum was slightly

thicker than in other places. The other organs showed no gross leukemic changes. During life it seemed there might be lymphoid hyperplasias in the alimentary canal, but the latter was entirely free from such alterations.

Spleen juice and red heart clot, kept for weeks in a moist-chamber, showed no Charcot's crystals. In bone-marrow, after many weeks in the moist-chamber, some very small crystals resembling Charcot's appeared.

The histological changes in the various organs consist essentially of a marked increase, or, as in the bone-marrow, a new growth of lymphoid tissue. The follicles of the enlarged lymph-glands are filled with small cells, the germinating centres are usually not to be seen, the lymph-sinuses are filled with small cells, and in many places the capsules of the glands are densely infiltrated. Only occasionally can a small part of a lymph-sinus be found in which large cells are present. Eosinophile cells are very rare in the lymph-glands.

In the spleen, besides the enlargement of the follicles, there is an extensive development of lymphoid tissue in the parenchyma, not dense enough, however, to produce nodules. The liver contains large numbers of small cells in the capsule of Glisson, and in the capillaries. The kidneys, slightly sclerotic, have no characteristic leukemic alterations. The bone-marrow consists of tissue closely resembling that of the hyperplastic lymph-glands. A very few small areas can be found, in most sections, in which there are large cells, with round or oval nuclei, a considerable amount of protoplasm, and which, when properly stained, show neutrophile or, very rarely, eosinophile granules. Some of these larger (neutrophile) cells contain mitoses, the smaller ones never. Very few of the ordinary multinuclear giant-cells of the marrow are present, and nucleated red blood-corpuscles are almost entirely absent. Cover-glass preparations of the bone-marrow show large numbers of small cells like those in the blood, no eosinophile cells, very few mononuclear neutrophile cells, and very few neucleated red corpuscles. The small cells resemble those in the blood, not only in size but also in the relative proportions of nucleus and protoplasm, in the affinity to stains, and in the fragmentation of the nuclei. Degenerated cells are also present, resembling those of the blood.

The small cells in the lymphomatous areas, as well as in the bone-marrow, also show the peculiar fragmentation of the nucleus, though, owing to the condensation of the cells in the tissues, the fissures are not so distinct. These cells, it should perhaps be said, are slightly smaller than cells in normal lymph-glands prepared in the same way.

They resemble the small cells found in the marrow of non-leukemic subjects, and those often present in the blood in pernicious anemia.

The clinical features of the case, including the condition of the blood, assign it a position among the group of diseases most conveniently termed chronic leukemia. In attempting to assign it more definitely to a subdivision of that group we cannot be guided by the gross alterations alone, and speak of it as a myelo-lienogenic or a mixed case, because the blood differs in important respects from that in the large proportion of such cases. If we class it according to the blood, it must be termed a lymphocythemic case, but we must then not lose sight of the fact that the cells differ in certain particulars from ordinary lymphocytes. It has been thought by some that a lymphocythemia can occur as a temporary change in the course of a chronic mixed leukemia, and, although this may be true, the period of observation in my case is quite too long to permit the conclusion that the small cells were only temporary sojourners in the blood. Moreover, in the case of Askanazy, with very similar cells, the observations extended over even a longer period.

In explaining such a case, some might claim that the small cells came from the lymph-glands only, and from the blood were deposited in the various organs. It seems much more rational to consider all the lymphoid tissues as possible sources of the cells,—not only the hyperplastic tissue in the lymph-glands and spleen, but also the tissue in the bone-marrow, which may be considered a heteroplastic lymphoid tissue, comparable to a metastatic process in tumor-formation.

The great development of lymphoid tissue accounts for certain peculiarities in the case other than the excess of small cells in the blood. The diminution of normal eosinophile cells and the small number of neutrophile marrow-cells, the scarcity of nucleated red blood-corpuscles and the absence of Charcot's crystals, all indicate a remarkable alteration of the bone-marrow which can be most easily explained by a crowding out, as it were, of the normal tissue there.

The diminished number of the usual varieties of leucocytes is interesting. This might be explained by the cachexia alone, by the alterations in the usual sources of such cells, or, in view of the degenerated small cells, as the result of failure of development on the part of cells which in the ordinary course should have become polymorphnuclear, with neutrophile granules in the protoplasm. A satisfactory answer does not seem possible. The idea that the degenerated cells are artefacts will of course arise. Although the appearance they present in stained preparations is partly the result of the necessary manipulations, all who are familiar with the subject will admit that with

normal blood so large a proportion of so-called degenerated cells cannot be artificially produced.

This case, I think, proves the claim of Neumann, that the peculiarities of leukemic blood depend on the kind rather than on the seat of the anatomical alterations.

It seems to prove, also, that the excess-cells in leukemic blood may be derived from any tissue in which such cells are formed, provided means are present for entering the circulation. What those means are we do not know.

As regards the relation of this case to leukemias in which the disease is limited to the lymphatic glands, I am unable to say anything, never having seen such a case. About three years ago I was consulted by a man who had extensive enlargement of the lymph-glands in the neck, axillæ, and groin. He had been considered a case of Hodgkin's disease by some, lymphatic leukemia by others. I found the spleen enlarged, red corpuscles 3,730,000, leucocytes 70,000, Fleischl 50. There were 15 per cent. of Ehrlich's myelocytes, 60 per cent. polymorphnuclear, 10 per cent. small mononuclear, nearly all of which had more protoplasm than the cells termed lymphocytes in the case used as the text for this paper, 1.4 per cent. eosinophile, a small proportion being mononuclear, 13 per cent. degenerates, normoblasts, 1 to 500 leucocytes. The general appearance of the blood was that of a mixed case of leukemia, so I advised against operation, which had been urged by a surgeon. The patient died a few months later.

As to acute leukemia, I have been fortunate enough to examine the preparations of Professor A. Fränkel, of Berlin, who has had so remarkable an experience with this disease. The blood in his cases, as appears from his descriptions, if not from his nomenclature, is quite different from that in my present case, as well as that in the case of Askanazy. (It may not be out of place to say that the blood in Fränkel's cases resembles closely that in my case of chloroma, the clinical features of which were very similar to those in many cases of acute leukemia.)

In conclusion, we must admit that a polymorphism of the leucocytes is by no means essential as a criterion of leukemic disease, but that there may be instead a preponderance of one particular kind of cell. Although this may conveniently be termed a lymphocyte, it is necessary in reporting cases to go beyond that term, and give accurate descriptions of size, form, and tinctorial peculiarities.

ROYAL COLLEGE OF SURGEONS OF ENGLAND
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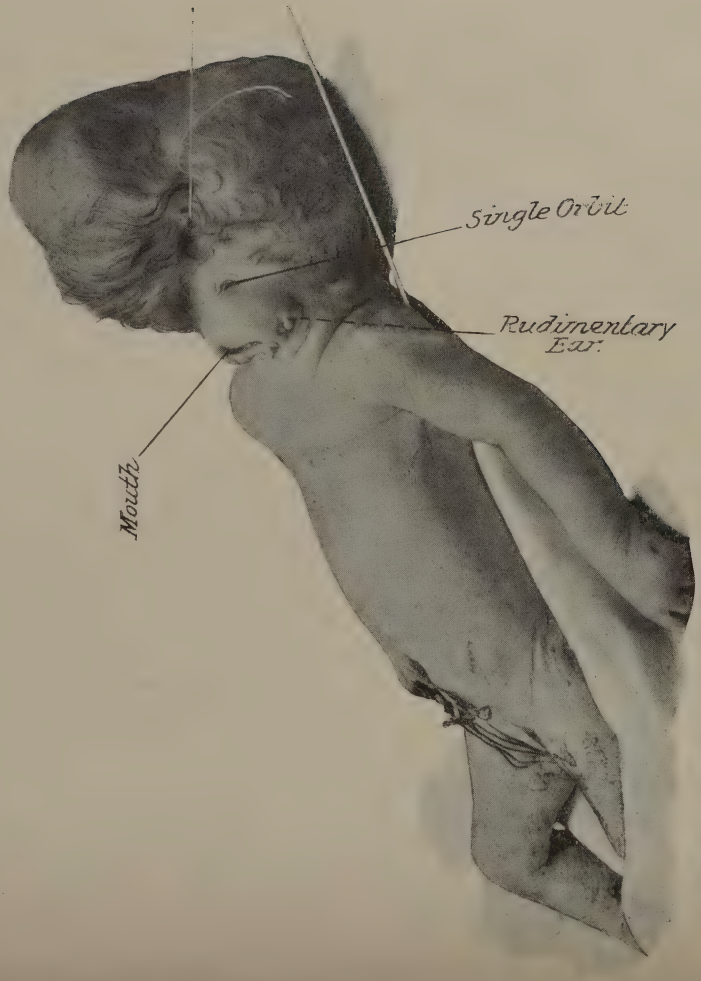

FIG. 1.—Showing orbit and mouth.

FIG. 2.—Showing mouth and ear.

AN OTOCEPHALIC MONSTER (OPOCEPHALE).

By M. H. Fussell, M.D.,

PHILADELPHIA,

Instructor in Clinical Medicine, University of Pennsylvania.

The history of this specimen, which was presented to me by my friend Dr. Charles Trites, is as follows:

Mother and father perfectly healthy. The father is a mill-worker, of German-Irish parentage. The mother is of German-Irish parentage also. They have two healthy children. The mother has had no miscarriages. No history of syphilis. One child died of convulsions. One child died in labor. The mother was supposed to be eight and a half months pregnant, when the membranes ruptured without any uterine pain. Labor did not begin for four days. On examination during labor the os was found to be distended with what appeared to be a large bag of water. The presence of hair, however, proved it to be a probable hydrocephalic head. Labor progressed normally, however, and the monster was born with a severe expulsive pain.

Examination of the monster developed the following points: The body of a female child, trunk and limbs normally formed, apparently at full term. It measures eighteen inches from the top of the head to the soles of the feet. The only abnormal appearance on the trunk is rather a small cord. The head and face are malformed. There are no eyes, but in the median line is a slit, on what would correspond with the forehead, with sharp lateral angles measuring three-eighths inch in length. Its upper border is straight, the lower border is notched in the median line. In this cavity on superficial examination there is no appearance of an eyeball. There is no trace of a nose. One inch below the orbit is the opening of the mouth, the lips of this opening look not unlike normal lips. This opening leads into what is apparently a cul-de-sac. On the right side, on a level with the mouth, is a malformed ear composed of fairly well-formed cartilage. One-half inch to the right of the right angle of the mouth the auditory canal ends in a cul-de-sac. Between this ear and the mouth is a fleshy tit. To the left of left angle of mouth and just below its level are three fleshy tits. The neck is about the normal length. On the top of the head is a heart-shaped sac containing a fluid, and measures six and a half inches in its longest diameter, and two and a half inches in its shortest diameter. It is entirely covered with hair. The heart-like extension is to the right of the median line, and its tip has evidently

presented in labor, as it is the seat of subcutaneous hemorrhage. On palpation the superior bones of the skull are found to be absent. The liquid contained in the sac is a turbid serum slightly blood-stained, and measures 360 cubic centimetres. On opening the sac the top bones of the skull are found to be entirely absent. The sac is lined with a membrane corresponding with the dura mater. Lying at the base of the skull is a rudimentary brain, the left hemisphere is much larger than the right, the right being a mere rudiment. There is a cerebellum in which the left hemisphere is much larger than the right. There is a fairly well-formed pons. There are no cerebral convolutions. Spinal canal and cord normal. The bones of the head are apparently two misshapen *parietal* bones, articulating with the occipital bone posteriorly, and united anteriorly by a piece of cartilage three-fourths of an inch wide. An *occipital* bone, having a foramen magnum, and a misshapen *frontal*, which contains the orbit. The orbit is occupied by a mass of tissue which is not simple connective tissue, but there is no normal formation which can be called an eye. There is no tongue or lower jaw. The bones of the upper jaw are absent. The orbital cavity is formed partly from the malar and from the rudimentary frontal bones. There is absolutely no opening between the mouth cavity and the gullet. There is a hyoid bone felt. There is no auditory canal. The thymus is of normal size and in normal position. The heart is in normal position. The lungs are not inflated. No abnormality found in chest or abdomen. When the stomach is opened, and a probe is entered, it follows the esophagus up to the position of the pharynx, but does not enter the mouth, being cut off by an impervious partition. The larynx is cut off from the mouth cavity. The genitalia and rectum are normal.

In deciding to what class this monster belongs one is necessarily guided by authorities. G. St. Hilaire ("Histoire des Anomalies de l'Organization," Vol. ii, 1837), whose classification of monsters has been followed by all later writers, divides monsters into two great classes. The *unitaires* and the *composes*. The first order of the first class he calls autosites, and in the fourth division of their order there are two families, the *cyclocephalines* and the *otocephalines*. The first of these families, a cyclops, is characterized by a more or less complete union of the eyes in the median line, and the absence more or less complete of the nasal apparatus, but the ears are always the normal distance from each other in their normal position. This last character distinguishes a cyclops from an otocephalic monster. The family of otocephalines is characterized by a modification very nearly like the cyclops but more grave. The cyclops are characterized by more or less complete union of the eyes in the median line and by absence of nasal apparatus. The otocephalics have, in addition to this,

an approach or union of the ears in the median line, which is complicated constantly by an atrophy, more or less marked, of the lower parts of the cranium, and frequently an absence of the jaws and great part of the face. He divides the otocephalic monsters into five general divisions. The fourth, or *opocephale*, he describes as having the two eyes brought together or united on the head, the jaws atrophied, absence of mouth and absence of proboscis. He describes this genus as follows: There is complete or almost complete absence of the nose, which is not often represented by a proboscis. The face is consequently reduced to two of the parts which usually compose it; unique ocular apparatus, often showing no trace of the double eye, unique auditory apparatus, usually median but sometimes double. The cranium and brain in opocephalics are generally very small in volume. Hirst and Piersol, page 126, Part III, in their work on monsters, say, in otocephalus, the lower jaw is altogether wanting or rudimentary. The ears approach one another, touch at their lower parts, and are even united. The mouth is ill developed and may be replaced by a minute orifice. The upper jaw and the sphenoid may also be very ill developed. The hyoid bone is in some cases absent, in others perfect. The tongue is rudimentary or absent. The approaches to the trachea and esophagus are sometimes open, sometimes closed. Otocephalus is very rare in the human species, but seems to be not infrequent among sheep. The agnathia is joined with synopsia and often with hemicrania. The fetus cannot live after birth, on account of the impossibility of ingesting food and often of inspiring. The cause of otocephalus or agnathia is an arrest in the development of the lower processes (Meckel's cartilages) of the first brachial arches. The arrest of development may affect this portion as well as any other part of the embryo, without the interposition of any mechanical interference with normal growth; but, according to Dareste, the primary cause may be an arrest of development in the cephalic fold of the amnion; whereby the cephalic extremity of the embryo may be subjected to a pressure which will prevent its perfect development. Otocephalic monsters are divided into several genera, two of which are the otocephalic and opocephalic. All authors agree that in the *otocephale* the jaws and mouth are distinct, and that in *opocephale* the mouth is reduced to a mere slit and the jaws are atrophied. It is true that in this specimen there are well-formed lips, and a large buccal cavity, but this is a mere cul-de-sac, and there is a total absence of jaws, both superior and inferior. Further, Hilaire describes the brain of the opocephalic as rudimentary, as it certainly is here. I therefore believe this specimen is an instance of otocephalic monster of the genus opocephale.

RESECTION OF THE KNEE-JOINT.

By Gwilym G. Davis, M.D., M.R.C.S. (Eng.),

PHILADELPHIA,

Surgeon to the Orthopedic Hospital.

The operation of resection of the knee-joint has been performed by the profession for so long a time that its usual technique is familiar to all. Notwithstanding this, there are few operative procedures that are so often followed by bad results. I am convinced that this is a fact, because an experience of many years has brought to my notice so large a number of cases in which the resultant deformity has been sufficiently great to demand a second operation for its correction. The liability of the limb to become crooked was further impressed on my mind by one of my earlier cases becoming so much bent, in spite of the greatest efforts on my part to prevent it, as to demand a subsequent resection to bring it straight. The manner of performance or technique of the operation at times is responsible for these bad results. The great temptation is to do a "brilliant" operation instead of an exact one. To obtain firm union of the divided bones is the object aimed at, but it is only to be achieved by a careful section of the bones. Fenwick proposed a curved incision of the bones, and A. M. Phelps, of New York, has used it extensively. In it the tendency of the sawn ends of the bones to slide up or down is lessened by the curved surfaces, and it also facilitates placing the limb in a proper position. If the bones are sawn square across, a slight bending will cause them to gape, while if sawn in the arc of a circle, they will slide on one another like a hinge, and still remain in contact. This curved method of section of the bones is, I believe, the best, but I have also sawn them square across. In this latter case, in order to prevent displacement, I have used a couple of very thick silver wire sutures, which are tightly twisted together when the ends of the bones are in proper position. These wires are removed in six weeks, and are to my mind preferable to catgut or other material for the same object. If the sawn surfaces are not cut with sufficient exactness so as to touch all the way across, then union will not be firm for a long while, and subsequent deformity is liable to occur. A similar result will follow a displacement of the sawn ends in an antero-posterior direction or any bending at the site of junction.

It is decidedly not desirable to so saw the bones as to cause the limb to be in a slightly flexed position on the completion of the opera-

tion. If this is done, the liability of the flexion subsequently increasing to an objectionable degree is much greater than if the limb is dressed straight.

Sufficient bone should be removed to enable the two bones to be brought end-to-end without too great tension: tension predisposes to subsequent flexion. Tenotomy of the hamstring tendons is not, as a rule, necessary. Sufficient time should be taken in the performance

FIG. 1.—Deformity after resection of the knee-joint.

of the operation to first detect and remove all diseased tissue; secondly, to saw the bones with mathematical accuracy; thirdly, to ligate or twist the bleeding vessels; and, fourthly, if the bones have been sawn transversely, to wire the bones strongly together, thus holding them firm; the twisted ends are brought out of the line of incision. The annoyance of having subsequently to remove the wire

is infinitesimal compared with that which may be caused by having displacement occur. In this, as in all operations on tuberculous children, the anesthetic (ether) should be watched with the greatest care, as death on the table from this cause is said to have occurred some time ago in a neighboring city. In dressing the wound flat layers of gauze are laid across the front and sides, but not reaching entirely around

FIG. 2.—Result after the second operation.

the limb. A long piece of gauze is then laid in the popliteal space and its two ends brought up and folded over the gauze already applied. The limb is then covered with a flannel bandage, followed by one of plaster of Paris. A narrow straight wooden splint is then laid on the back of the limb from above the heel to the gluteo-femoral fold. Over this is applied more plaster bandages embracing the foot below and the pelvis above. It is only by including the foot that the sawn leg-bones can be controlled, and it is only by including the pelvis

that the sawn femur can be properly held in position. On the second day the plaster is cut away from the front and partly the sides of the knee, the two ends of the outer piece of gauze are turned one to each side, and the drainage-tubes removed, if any have been inserted. Fresh gauze may be applied, and the two ends brought up again over it; a few circular turns of a bandage complete the dressing. By following this method the wound may be dressed without disturbing

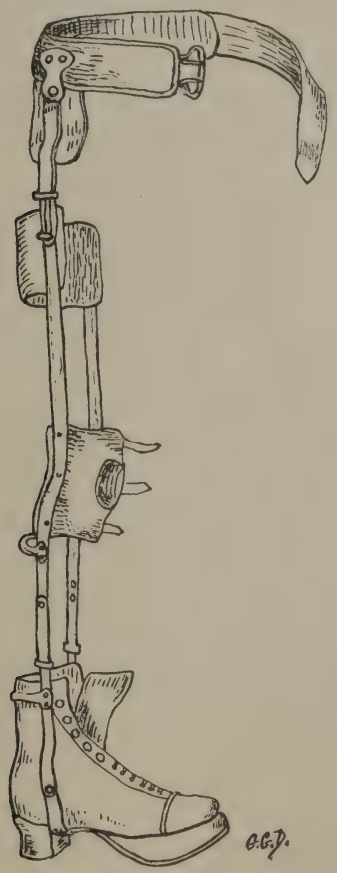

FIG. 3.—Brace to be worn after resection of the knee-joint.

it in the slightest. In about six weeks the plaster is removed, the wires, which are now loose, are taken out, an apparatus is applied, and the patient allowed to walk around, at first using crutches. Fig. 1 is an example of the deformity which sometimes follows resection of the knee-joint. The limb had been resected five years previously, and had been crooked when discharged from the hospital. The knee was

bent backward at an angle of forty-five degrees; the foot was rotated internally thirty degrees, and there was internal bowing of fifteen degrees. Sufficient bone was removed to enable the limb to be brought straight, and the post-operative result is shown in Fig. 2. When healing is completed sometimes a little movement can still be detected,—that is, a slight bending may be possible at the site of junction of the bones. Even if union appears absolutely firm, subsequent bending is still apt to take place. I am convinced that repair after operations on bones does not take place with anything like the rapidity that it does in fractures. I have been able to detect a slight degree of movement for nearly or quite a year after operations of this character in which later absolute bony union took place in good position. Therefore, after resection of a knee-joint, a supporting brace should be worn for at least one year, and, if necessary, even longer. Such a brace is shown in Fig. 3. It consists of two side irons and a pelvic band. It is jointed at the ankle and hip. A broad band passes from side to side across the back of the thigh as high as the gluteo-femoral fold, this above and the shoe below support the two ends of the bony column posteriorly. Pressure on the front of the knee is made by a leather knee-cap, which passes across and is fastened to the irons on each side. The foot may be inverted or everted to any extent desired by bending the brace just below the hip-joint with wrenches. Any tendency to in- or out-bowing at the knee is met by the insertion of a pad at that point and bending the side irons to make any desired pressure. It will be noticed that the limb is not constricted at any point by circular bands. The broad band at the top only passes half-way around the limb, and forms a trough in which the thigh rests, while the only pressure anteriorly is made by the knee-cap, which leaves the popliteal space uncovered. This arrangement not only makes the brace neater and less cumbersome, but it allows unrestricted play for the muscles, and thereby favors their development.

LARGE SYPHILITIC TUMOR OF THE LIVER; GRADUAL AND COMPLETE DISAPPEARANCE UNDER THE USE OF IODIDE OF POTASSIUM.

By D. J. Milton Miller, M.D.,

PHILADELPHIA.

W. R. Y., male, native of Scotland, aged 45 years, a cloth-finisher, entered the Episcopal Hospital, January 12, 1894, for an abdominal tumor, pain, and vomiting, for which he had been treated at the Jefferson Hospital in September, 1893.

The family history was negative. He had had influenza, but no other disease of consequence except syphilis in 1874. Twelve years later secondary skin lesions occurred. He has been a moderate drinker, taking alcohol to excess at times only. In July, 1893, he first noticed the enlargement on the right side of the abdomen. At this time it was painful; but later this symptom was absent. He has never been jaundiced. The mass increased considerably in size, and for some time before coming under my observation vomiting was frequent and annoying, occasionally very severe, and often consisting of dark coffee-like material. Ingestion of food never caused pain. There was no cachexia, and no enlargement of any of the superficial lymphatic glands. There were no nodes, and no scars on the penis or in the groins; but along the tibial spines a few brownish-colored stains were to be seen. The man was rather spare, having lost flesh (twenty pounds in the last seven months), but was otherwise fairly well nourished. He was constipated, had a coated tongue, and poor appetite. The heart and lungs appeared to be normal.

On examining the abdomen a tumor was detected in the right hypochondrium, in the parasternal line, midway between the navel and the costal border. It was about the size of a half orange, more or less irregular in outline, and very hard and resistant. Careful examination and palpation showed that the mass was connected with the liver. It began about two inches above the lower border of that organ and extended almost to the costal border above. The surface seemed nodular, and on the extreme left border a nodule the size of a walnut could be distinctly felt through the abdominal walls. It was quite painless. The liver itselt was enlarged, the lower border coming within two inches of the navel. The greater vertical liver dulness (in the parasternal line) measured five and a half inches. The spleen seemed somewhat enlarged, but did not extend beyond

the border of the ribs. The urine on admission, and during the course of the affection, was normal.

Treatment was deferred until the stomach contents could be examined. This was not accomplished, through a series of mistakes and accidents, until after the patient had been almost four weeks in the hospital. The results of the examinations, of which several were made, showed the presence of free hydrochloric acid, and of lactic acid (Günzburg and Uffelman's tests).

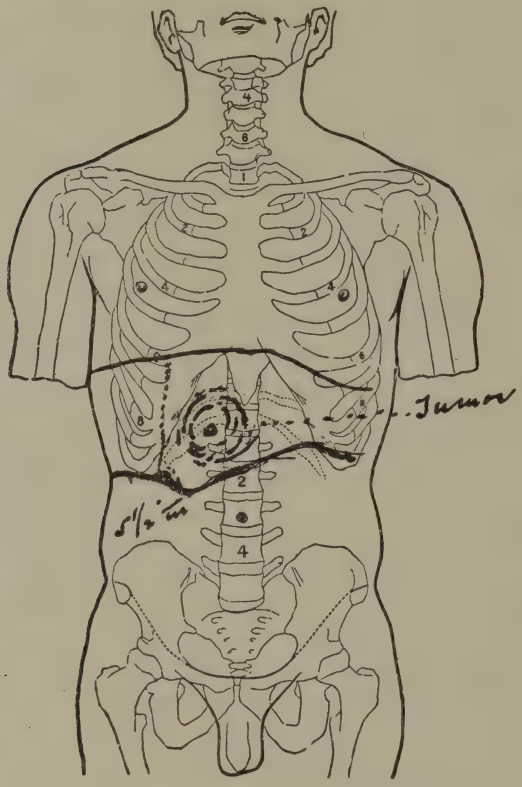

FIG. 1.—Size of tumor and liver, January 15, 1894.

On the 15th of March it was noted that he had been vomiting again, and that there had been a good deal of pain. About this time the true nature of the affection was recognized, and he was put upon the iodide of potassium (ten grains), and the bichloride of mercury (one-twenty-fourth grain), thrice daily. This was continued until he left the hospital, six weeks later (April 28, 1894). Slow but steady improvement followed this treatment. At the time of his discharge the tumor had perceptibly decreased in size, and the liver became smaller.

In addition, the patient grew stouter, his appetite and digestion became normal, and he declared himself quite well. He was advised to continue the iodide.

On the 17th of December, 1895 (twenty months later), he wrote from Towson, Maryland, where he was employed as an attendant in an asylum, that he had remained well for eight months after leaving the hospital, when the tumor began to grow again, and was then, at the time of writing, quite large. He had lost fifty pounds in six months. He was advised to come to Philadelphia; instead, he consulted Professor Osler, at Johns Hopkins Hospital, through whose courtesy I am enabled to append the subsequent history of the case.

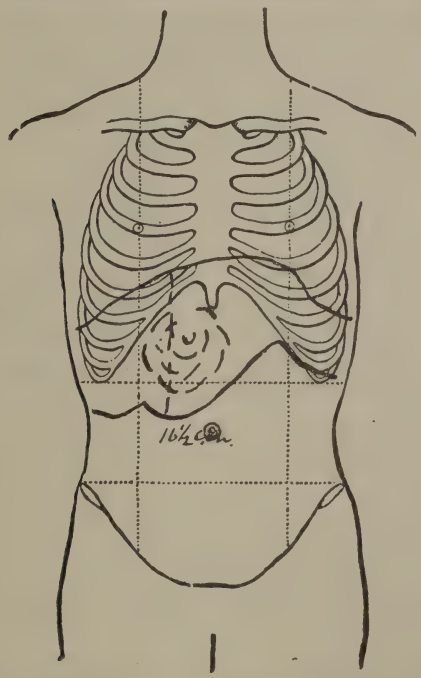

FIG. 2.—Size of tumor and liver, February 11, 1896.

Dr. Osler first saw the patient on the 11th of February, 1896, and made the following note: "There is a marked prominence in the right hypochondrium below the costal margin, the greatest projection being midway between the navel and the costal border. On palpation, the liver is greatly enlarged; its lower edge is within a finger's breadth of the navel, and in the nipple line there is an abnormally deep notch. In the parasternal line, midway between the costal margin and the navel, there is a smooth, rounded mass, evidently in the liver. The fingers can be placed beneath the edge of the organ, just above the navel, and

then the tumor can be felt to begin about one and a half inches from this point. Above, on deep inspiration, the fingers can be placed between the costal margin and the rounded border of the tumor. Towards the right the mass is a little irregular. It is entirely painless. The vertical liver dulness extends from the upper border of the sixth rib sixteen and a half centimetres. The gall-bladder cannot be felt. The edge of the spleen is not below the costal margin."

Notwithstanding the absence of nodes or other signs of syphilis, Dr. Osler, with his well-known diagnostic acumen, readily recognized the specific nature of the affection, although he states the mass seemed larger and more prominent than is usual in gummata. "It was large enough to be seen at a distance, and lifted the skin prominently as a hemispherical tumor." He was given the iodide of potassium in twenty-grain doses. Prompt improvement followed this treatment. On March 23 (about six weeks) "the tumor mass did not stand out with quite so much prominence." The patient was not seen again until November 11, an interval of eight months. The medicine had been taken for three months, and he came back to report his extremely satisfactory condition. The pains had gradually lessened, the tumor had disappeared, and he was feeling extremely well, having gained thirty pounds in weight. "Inspection showed no trace of swelling in the upper abdominal zone. The tumor mass had disappeared entirely. The edge of the liver is to be plainly felt about four centimetres below the ensiform cartilage. There is no roughness. In the parasternal line the margin is felt two fingers' breadth below the costal margin, and here feels irregular and nodular. In the nipple line the margin of the liver is fully three fingers' breadth below the ribs." On the 25th of February, 1897, the patient was in splendid condition, having gained fifty pounds in weight during the year. He was so stout that a satisfactory examination could not be made. The epigastric enlargement had disappeared entirely and the edge of the liver could not be felt.

The annexed diagrams give a very good idea of the size of the liver and position of the tumor on January 15, 1894, when admitted to the Episcopal Hospital, and on February 11, 1896, at Johns Hopkins Hospital.

This very satisfactory result, the complete disappearance of so large a mass under the use of the iodide, emphasizes the great importance of a correct diagnosis in syphilitic disease of the liver. The difficulties are particularly great, when, as in cases like the above, the gummata assume a definite tumor-like form. Differentiation from actinomycosis, echinococcus, and, especially, carcinoma, is then, with-

out a history of distinct infection, often impossible. In the absence of such a history the therapeutic test may be of great value. Semmola and Gioffreddi ("Twentieth Century Practice," Vol. ix, 625, 1897) lay great stress upon a careful examination of the blood in applying this test. They state that if the number of red corpuscles, and, especially, the amount of hemoglobin, is not increased under the administration of mercury, the patient is not syphilitic. Edward Lang (*Pathologie und Therapie des Syphilis*, Wiesbaden, 1896, p. 335) says that stationary or slow growth of the tumor or protuberances, enlargement of the spleen, and the presence of albumin favor the diagnosis of syphilis. Careful examination of the stomach contents should also be made, when, as in the case here reported, there is a history of pain and vomiting of coffee-like material, with an epigastric tumor, alone, or connected with an enlarged liver. That the difficulty is a real one is shown by the fact that the abdomen has been opened several times in cases of hepatic syphilis for the removal of supposed carcinoma of that organ or the stomach. H. Tillmanns (*Ibid.*, p. 335), Wagner (*Ibid.*, p. 335), and Julius Hochenberg (*Ibid.*, p. 335) report such cases.

In the present case I confess we were in doubt as to the correct diagnosis for many weeks. From the presence of pain and frequent vomiting, and the absence of actual signs of specific disease, we were at first inclined to regard the tumor as malignant; but the normal condition of the stomach contents, the absence of cachexia, and the fair general condition of the patient caused this view to be abandoned. The iodide of potassium and mercury were then administered. Considerable improvement followed this medication, which continued during the last six weeks of his stay in the hospital. For eight months he remained free from symptoms, when the tumor began to grow again. That the treatment was not so effectual as when he was under Professor Osler's observation may be attributed to the latter's prompt diagnosis, the earlier and longer treatment, and the larger dose of the iodide. While under our care the patient received thirty grains daily for six or eight weeks. At the Johns Hopkins Hospital the daily dose was sixty grains, and the treatment was persisted in for many months.

A REPORT OF A NUMBER OF CASES PRESENTING THE CLINICAL FEATURES OF DIPHTHERIA TREATED BY ANTITOXIN IN CONNECTION WITH ORDINARY TREATMENT BY CORROSIVE SUBLIMATE.[1]

By Clara T. Dercum, M.D.,

PHILADELPHIA,

Instructor in Therapeutics at the Woman's Medical College of Pennsylvania; Visiting Physician to the Jewish Maternity; Clinician to the Woman's Hospital.

Last year I reported to this society several cases of diphtheria successfully treated by antitoxin. Having had the opportunity of testing the value of this remedy again, I thought it would be of interest to the society to present a further report on the same subject. In the previous paper there were reported four cases successfully treated and five children successfully immunized by the serum. In that report, however, the diagnosis of diphtheria was based upon the clinical symptoms alone. Since then I have treated fourteen cases which presented the clinical features of the disease with antitoxin. Five of these cases failed to reveal the Klebs-Löffler bacillus, and must be regarded as instances of pseudo-diphtheria in contradistinction to true diphtheria. Three of them received antitoxin without any deleterious effects being observed.

Without the bacteriological test it would have been impossible to have made a positive diagnosis of true diphtheria, nor was the membrane in the pseudo-cases confined to or always on the tonsils. In all probability the suspicion of the true character of the disease in the pseudo-cases would have been aroused by the symptoms of mercurial poisoning which generally ensues under the vigorous use of that drug when the disease is not true diphtheria. It is remarkable what an amount of corrosive sublimate an individual, either child or adult, suffering from true diphtheria will take without giving the slightest evidence of its physiological effects. Eight out of the nine cases of true diphtheria received antitoxin; one case did not, owing to the fact that for a few days it presented the clinical features of a follicular tonsillitis; but as it did not yield to the ordinary treatment for this affection a bacteriological examination was made and the bacillus found; by this time, however, the disease was progressing favorably

[1] Read before the Alumnæ Medical Society, December 12, 1896.

under active mercurial treatment, and so the antitoxin was not injected. Fourteen children in families where the disease existed were also successfully immunized without one untoward symptom being developed. The cases are as follows:

Case I.—R. H., aged 2 years, a boy, was first seen on the 12th of November, 1895. He had been sick for two days. An examination revealed membrane on the tonsils, pharynx, and nares. Two thousand units of Mulford's antitoxin were injected in two separate doses several hours apart, on the third day of the disease. The bacteriologic examination confirmed the diagnosis. Recovery in two weeks.

Case II.—C. H., aged 12 years, sister of the above child, was taken sick on November 18, 1895, which was the following day. Examination revealed membrane on pharynx and tonsils. Two thousand units of antitoxin were injected in two separate doses within the first twenty-four hours of the disease. Bacteriologic examination did *not* confirm the diagnosis. Recovery in five days. In the cultures taken from the throats of the three remaining children in the family the bacillus was found in only one culture taken, that from the throat of a little boy, aged four years. All of these children were successfully immunized by the serum.

Case III.—M. McD., aged 18 months, a girl, was first seen on the 21st of December, 1895. An inspection revealed membrane on pharynx and tonsils. Severe dyspnea was present, no air entering the lower lobes of the lungs. A tube was inserted into the larynx and two thousand units of antitoxin were injected, on what was probably, from all accounts, the fourth day of the disease; bronchial trouble ensued. The tube was allowed to remain for several days, and was finally removed with great difficulty. The child made an apparent recovery, and was dismissed on the 15th of January, 1896. However, I was again summoned to see it on the 28th of the same month; dyspnea was again present, and the tube which was easily inserted before could not now be introduced; the efforts to do so were discontinued and the room filled with steam; breathing became easier and gradually improved; however, the general condition of the child remained bad, and it finally died of heart-failure on February 6, forty-seven days after the injection of the antitoxin. No autopsy was allowed. The hygienic conditions were very bad, and after the child's first apparent recovery, the mother, on her own responsibility, kept it in a draughty kitchen in which she was washing and cooking. The diagnosis was confirmed by bacteriologic examination.

Case IV.—J. McD., aged 4 years, a brother of the above child, was examined on the same day, and membrane discovered on pharynx and tonsils. Two thousand units of antitoxin were injected on what

was in all probability the third day of the disease. Bacteriologic examination revealed the characteristic bacilli. Recovery in seven days. A culture made from the throat of the one remaining child also disclosed the bacillus; he received an immunizing dose of serum, which proved effectual.

Case V.—A. L., aged 4 years, a girl, was first seen on the 6th of January, 1896. She was just recovering from an attack of chicken-pox. Examination revealed membrane on the tonsils and pharynx. Two thousand units of antitoxin were injected within twelve hours of the first appearance of the disease. Bacteriologic examination confirmed the diagnosis. Recovery in ten days. The only other child in the family received an immunizing dose of serum; he, however, contracted the disease four weeks later, but was under the care of another physician.

Case VI.—M. M., aged 5 years, was first seen on October 17, 1896. The follicles on the tonsils were pouting and filled with sebaceous material. A diagnosis of follicular tonsillitis was made, but as no improvement occurred with the ordinary treatment a bacteriologic examination was made, and the diphtheria bacillus was found. However, as the case by this time was progressing favorably under the old mercurial treatment no antitoxin was used. Recovery in about ten days.

Case VII.—H. W., aged 4 years. Previous history: Some time during the month of November, 1895, I was hastily summoned to see this child, a boy, on account of an attack of severe dyspnea. Examination of throat revealed membrane on pharynx and tonsils. Examination of chest revealed the fact that air was not entering the lower lobes of the lungs. Not having any tubes, and knowing of no one in the immediate neighborhood who had, the father was informed that the child's only chance was to summon the Municipal Hospital ambulance and have him conveyed there at once, where a tube could be inserted immediately. This was done. The recovery was slow, and two months were spent in the hospital. Two weeks after his return his brother was taken ill with diphtheria, was removed to the hospital, and died within twenty-four hours. Early in the morning of November 7, 1896, I was hastily summoned to see this child on account of a slight dyspnea which had developed during the night; the breathing was not embarrassed in the slightest. Inspection of the throat was negative, although the child's cry was hoarse. On account of the previous history of the child the immediate use of antitoxin was strongly advised without waiting for the result of a bacteriologic examination, for if it proved to be a true membranous croup much would have been gained, and if it did not prove to be so, no

harm would have been done. Consent was readily given to this proposal, and two thousand units of antitoxin were immediately injected within a few hours of the development of the disease. The tentative diagnosis of beginning membranous croup was confirmed by the culture test, the child continued slightly croupy for a few days only, and at no time appeared ill. The bacilli disappeared from the throat in two weeks.

Case VIII.—M. T., aged 3 years, a boy. On November 13, 1896, a hasty summons came at 10 P.M. to see this child. He had been put to bed at 8 P.M. in apparent health. Respiration was difficult; the epigastrium and ribs were being drawn in with each respiratory movement. An examination of the throat proved negative; however, a diagnosis of true membranous croup was made, and at 11 P.M. 1000 units of antitoxin were injected, and the following morning 1000 more units were given. The room was constantly filled with steam, and within ten hours the child was completely relieved of the dyspnea; there was still a slight croup present for two or three days. The bacilli disappeared within one week from the throat. The two remaining children in the family each received 300 units of antitoxin, which is the ordinary immunizing dose. In one of the cultures made from these throats, that of a little boy, aged 4 years, the bacillus was found.

Case IX.—E. T., aged 4 years, a boy, was first seen on November 14, 1896. One week previously his sister had returned from the Municipal Hospital, where she had been treated for diphtheria. He had been ill for one day, and an examination revealed membrane covering the pharynx, fauces, and tonsils. This child was very ill, and received 3000 units of antitoxin, in 1000 unit doses, within thirty hours after being seen; injected on the second day of the disease. The diagnosis was confirmed by bacteriologic examination. One child, a baby, received 300 units of antitoxin for immunization.

Case X.—J. C., aged 6 years, a girl, was first seen on November 15, 1896, at 10 P.M.; had been sick for two hours. An examination revealed the fact that membrane was beginning to form on the right tonsil. This case proved to be one of the worst cases ever seen by the writer, for the rapidity with which the membrane formed. Ten hours later the fauces, soft palate, pharynx, tonsils, and nares were completely covered with membrane, and the glands on both sides of the neck so swollen as to give her a most distorted appearance. There had been no intimation the previous evening that this would prove such a malignant case, save the intense drowsiness and high temperature. It was regretted very much that antitoxin had not been used immediately; however, she received the first 1000 units within twelve

hours of the first intimation of her illness, and two doses more of 1000 units each within the next twenty-four hours. Blood and matter were constantly flowing from throat and nose; the stench was intolerable, and for a few days both windows (fortunately the weather was mild) had to be kept open so as to make it possible for some one to remain in the room, even for a short time,—it was an odor of decomposition. She was desperately ill for about ten days, and refused food; it was only by the utmost perseverance that enough milk, brandy, and panopepton were given to sustain life; the condition gradually ameliorated, however, and the appetite returned. She made a good recovery in three weeks, the bacilli disappearing from the throat a few days later. Paralysis of the soft palate ensued, and persisted for a few weeks. Five brothers and sisters of the little patient each received 300 units of antitoxin, and in only one culture taken from these children's throats was the bacillus found.

The pseudo-diphtheria cases are as follows:

Case XI.—H. A., aged 7 years, a boy, was first seen on the 2d of June, 1896. Membrane covered pharynx and tonsils. Two thousand units of antitoxin were injected on the third day. Recovery in ten days. Bacteriologic examination showed absence of true bacillus.

Case XII.—C. T., aged 13 years, a girl, was first seen on November 4, 1896. Patches of membrane on pharynx and tonsils. They appeared thin and flocculent; no fever. No antitoxin was used. Mercurial treatment. Bacteriologic test negative. Recovery in four days. Symptoms of mercurialization soon appeared.

Case XIII.—K. T., aged 38 years, mother of the above child, was seen on the 9th of the same month; the membrane had the same flocculent appearance, and was observed on tonsils and pharynx. Slight fever in this case, with a great deal of pain in back and limbs. Recovery in four days. No true bacillus found.

Case XIV.—C. S., aged 7 years, was first seen on November 27, 1896. Membrane on tonsils and pharynx. Fever moderate. Two thousand units of antitoxin were injected. No bacilli found. In this case the symptoms of mercurialization soon made their appearance; and without the bacteriologic examination it would have soon been evident that it probably was a case of pseudo-diphtheria.

From the experience with the above cases the following conclusions as regards diagnosis have been arrived at:

(1) That the diagnosis clinically of membranous croup from simple catarrhal croup is an impossibility, and that the safer plan is to regard all such cases as true diphtheria, and use the antitoxin at once without waiting for a bacteriologic examination.

(2) That it is impossible to be absolutely sure that a case that

presents all the clinical features of a simple follicular tonsillitis is not true diphtheria. Da Costa makes that same statement in his work on medical diagnosis.

(3) That pseudo-diphtheria cannot be distinguished clinically from true diphtheria, and that pseudo-diphtheria is also contagious. You will notice the report of a case where the mother contracted it from her child.

(4) That in two cases in one household one may have true diphtheria and one pseudo-diphtheria, as shown by Cases I and II. None of these cases of either true or pseudo-diphtheria were followed by any sequelæ, save slight paralysis of soft palate in one case.

No alarming symptoms were observed in any of the cases attributable to the injection of the antitoxin, nor has an abscess ever followed at the site of an injection. This is, of course, attributed to the sterilization of the syringe. Of all the cases immunized, one contracted diphtheria six weeks after the injection. The fall of temperature which usually occurs within a few hours after an injection of antitoxin is remarkable; it often falls from 103° or 104° F. to 100° or normal. Sleep generally follows, and as a rule the appetite is markedly improved. The routine method adopted, besides the use of the antitoxin in the treatment of the disease, is as follows: When the child is first seen one-quarter of a grain of calomel is given every hour until the bowels are freely moved. After this has occurred corrosive sublimate in doses of one-forty-eighth of a grain to one-hundred-and-fiftieth of a grain with tincture of the chloride of iron and glycerin is given every hour. The dose of corrosive sublimate, of course, varies according to the age of the child. Locally the best results have been secured from either a spray or gargle of corrosive sublimate, the strength varying according to the age and the ability of the child to expel it from the mouth, and even if it is swallowed little harm is done, for it is unusual for a child to exhibit any signs of mercurial poisoning, no matter how the drug is pushed or how young the child, provided the case is one of true diphtheria. The corrosive sublimate is used in this manner in strengths of one part to 1000, 1500, or 2000 parts of water. Peroxide of hydrogen has proven itself, in the hands of the writer, to be of no value as a germ-destroyer in this disease; it could probably be used for weeks after recovery without any effect on the bacilli. Löffler's toluol solution has also been given a fair trial, but it has not the effect on the bacilli exercised by the corrosive sublimate, for under the use of this drug they disappear in a few days from the throat,—that is, in a few days after the membrane has vanished. In order to be effectual, however, the spray or gargle has to be used incessantly for a few days, and parents will

generally follow directions, as they are very anxious to have the diphtheria notice removed from their door, and it is well to make it a point to inform them that the early removal of the notice depends on their own efforts. If this method is pursued one, two, and possibly three cultures may be taken after the recovery of the child to demonstrate the absence of the bacilli. As has been stated before, the spray or gargle contains one part of corrosive sublimate to 1000, 1500, or 2000 parts of water. Birnay's antiseptic tablets are very nice for this purpose, one tablet dissolved in four ounces of water will give a solution of corrosive sublimate of one part to a 1000 parts of water; of course, by adding more water any strength can be secured. They come white or colored blue, and are put up in bottles containing 1000, and these can be procured from any leading drug house in the city. The largest number of cultures taken that has come to the writer's knowledge before the absence of the bacilli were demonstrated were twelve after the recovery of the child, peroxide of hydrogen was the antiseptic used, showing, as has been stated before, the utter valuelessness of the drug for this purpose, the result was finally accomplished by burning sulphur in an adjoining room, the sulphurous acid fumes escaped through the cracks of the door, and the child inhaled the fumes, which rather irritated the respiratory tract, but the desired result was finally secured.

Since reading the above paper I have had six more cases which received antitoxin.

Case XV.—E. D., aged 21 months, was seen on December 30, 1896. Slight croup was present; however, on New Year's eve the croup suddenly became worse, and 2000 units of antitoxin were injected, in 500 unit doses, within fourteen hours. This gradual dosage was resorted to on account of the tender age of the child and the uncertainty regarding the true nature of the disease. Bacteriologic examination failed to find the bacillus. The temperature at no time rose above 101° F., indicating, if anything, true croup, as in catarrhal conditions the temperature usually ranges higher. The child made a good recovery under the usual treatment for catarrhal croup. Two weeks after the administration of antitoxin he suffered from a severe attack of urticaria, due, no doubt, to the use of the antitoxin.

Case XVI.—J. B., aged 5 years, was first seen on the third day of illness, on January 25, 1897. Inspection revealed membrane on tonsils and pharynx. Antitoxin was administered by Dr. Bemis, of the Board of Health office, on the fourth day of the disease. Recovery in ten days. Bacteriologic examination confirmed the diagnosis.

Case XVII.—L. H., aged 6 years, was first seen on February 4, 1897. Inspection of the throat revealed membrane on the tonsils

and the pharynx. Fifteen hundred units of antitoxin were injected on the same day, which was probably the second day of the disease. Recovery in two weeks. Bacteriologic examination confirmed the diagnosis.

Case XVIII.—H. H., aged 4 years, brother of the above patient, attracted my attention by a discharge from his nose, which, on inspection, proved to be a rhinitis accompanied by a purulent and bloody discharge. Bacteriologic examination revealed the germs. One thousand units of antitoxin were injected upon this discovery. It was three weeks before the nose returned to a normal condition. Mild solutions of corrosive sublimate were used frequently to clean the nasal cavities followed by a boric acid ointment.

Case XIX.—R. D., aged 2 years, was first seen on February 25, 1897. A harsh, croupy cough had been present for the past two days. A culture test was made because a case of diphtheria had occurred in the house four weeks previous to this, and had been immediately removed to the Municipal Hospital. The germs were found. Fifteen hundred units of antitoxin were injected on about the third day of the disease. Recovery in a few days. No dyspnea was present in this case at any time.

Case XX.—M. D., aged 4 years, had the germs in his throat. Five hundred units of antitoxin were injected. The disease did not develop in this case.

AN APPLIANCE FOR IMPROVING THE EFFICIENCY OF THE NAUHEIM BATH TREATMENT IN HOSPITALS OR AT HOME.

By Edward Wright Smitheman,

Student in Medicine, University of Pennsylvania.

The value of the combined mineral and carbonated baths at Nauheim, Germany, in cases of rheumatism, rheumatic heart-disease, gout, and kindred affections, has been conclusively demonstrated. It has also been proven that imitations based on the analyses of the original baths have decided therapeutic value. Dr. Tyson's article (University Medical Magazine, July, 1897) on the Schott treatment at Nauheim and by the home-made baths covers the field so thoroughly that further description or review would be superfluous.

The acknowledged chief defect in the home-made baths described is the imperfect success of the means employed to generate a supply

of gas sufficient in quantity or duration to impart to the prepared baths the distinctively carbonated character of the natural springs at Nauheim. It will be remembered that this has been heretofore accomplished by decomposing sodium bicarbonate by hydrochloric acid. The inferiority of the home-made as compared to the natural baths is probably due, in part at least, to deficiency of this method.

The appliance suggested to remedy this defect consists in a

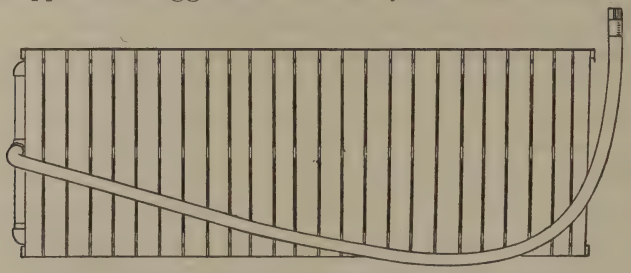

FIG. 1.—Showing surface of frame-work toward the patient.

cylinder of liquefied carbonic acid gas, connected by a strong rubber hose with a distributing coil of perforated metal pipes, encased in a protecting rack, which is laid at the bottom of the prepared bath. The gas is turned on from the supply-tank, and by the pressure arising from its expansion from the liquid state is forced through the distributing coil as a continuous subaqueous spray further diffused by

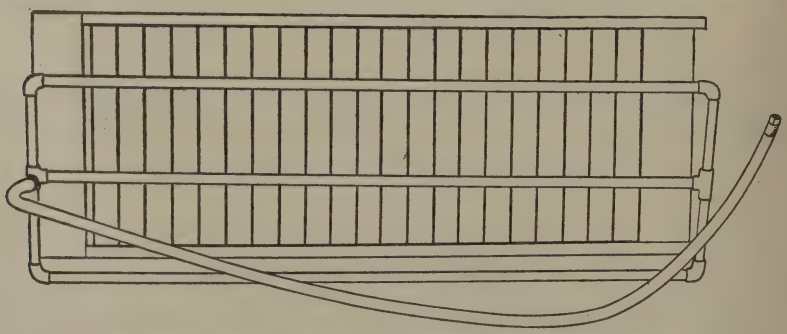

FIG. 2.—Surface of the frame-work toward the bottom of the tub, with coil and rack separated.

the interposed protecting rack. The force and quantity of the escaping gas are under absolute control. The patient, when in the bath, is protected by the rack from the metal tubes, and lies in a mass of gently moving water, permeated by a continuous stream or streams of ascending gas. The quantity of carbon dioxide present is in no way influenced by the temperature of the water.

The original apparatus now in use at the University of Penn-

sylvania is conveniently portable and suitable for use in either hospital or private practice.

It is the writer's belief that the home-made baths thus improved will have more of the properties of the natural baths, which are thus brought to the patient instead of the reverse, as is customary.

The suggestion is made tentatively that the carbonating method may be applied to the Brandt baths in typhoid fever, thus combining the defervescent effects of the cool baths with the tonic and stimulant effects of the carbonated bath.

Experiments are now in progress that will furnish data for conclusive reports on the value of this method.

I here gratefully acknowledge the courtesy and assistance of Dr. Tyson in the preparation and introduction of this method.

The appended drawings show the frame-work of wood and the tubing. Fig. 1 shows the surface towards the patient, Fig. 2 that towards the bottom of the tub.

ALUMNI NOTES.

University Day.

The University's annual celebration of Washington's birthday was held at the Academy of Music, February 22, 1898, before a gathering of distinguished guests, trustees, undergraduates, and friends of the institution. The presence of the President of the United States gave particular interest to the occasion, and the interior of the Academy was thronged with spectators.

Beale's Municipal Band played before and during the exercises. The ceremonies were formally begun at 11.15 with prayer by Bishop Whitaker, of Pennsylvania. The national hymn "America" was sung.

Provost Harrison then introduced President McKinley in a short speech; he said in part:

"It is the pride of Pennsylvania that she was founded when there were not fifteen thousand people between the Delaware and Schuylkill. . . .

"It is the peculiar pride of the University of Pennsylvania that so much of her history is associated with the years during which Washington was the servant of his country. Of whatsoever others may boast, we justly feel that we have pre-eminence in this relation, and now, in these later years, in the vigor of renewed youth, we have

consecrated the 22d of February as our 'University Day,' with a propriety that cannot be challenged. Upon what academic roll can be found the names of such illustrious men, companions of Washington, in the service of their country and of humanity, as those of Franklin, founder and trustee; of Robert Morris, the friend of Washington, and the man who, with Washington and Franklin, rendered the most signal service during so many years of trial; of Francis Hopkinson, signer of the Declaration of Independence, chief of the Navy Department, trustee of the University of Pennsylvania; of John Nixon, trustee, who read the Declaration of Independence to the townspeople who were assembled at the State House,—the original broadside from which he read still being in existence, and owned in Philadelphia by one of his descendants; of Thomas McKean, trustee, signer of the Declaration of Independence, president of the Continental Congress, Chief Justice of the State of Pennsylvania, Governor of the State of Pennsylvania. . . .

"The theme of to-day's ceremonies is the 'Memory of Washington.' No place is more fitted for it or more hallowed by its associations than Philadelphia and the University of Pennsylvania." . . .

President McKinley arose after Provost Harrison's introduction, and the entire student body arose and saluted him with the 'Varsity yell. The President spoke for thirty-five minutes on the life and character of Washington, and fittingly praised the University of Pennsylvania. Following are a few extracts from his speech:

"No other American institution of learning has a prouder title to the veneration of Washington's memory than this, whose foundation was laid in colonial days, nearly fifty years before Pennsylvania became a State; whose progress was largely due to the activity of Franklin and other zealous and far-seeing patriots. . . .

"But with all our pride in Washington, we not infrequently fail to give him credit for his marvellous genius as a constructive statesman. . . .

"It was committed to Washington to launch our ship of state. He had neither precedent nor predecessor to help him. He welded the scattered, and at times antagonistic, colonies into an indestructible Union, and inculcated the lessons of mutual forbearance and fraternity which have cemented the States into still closer bonds of interest and sympathy. . . .

"From the day our flag was unfurled to the present hour no stain of a just obligation violated has yet tarnished the American name. This must and will be as true in the future as it has been in the past. . . .

"We have every incentive to cherish the memory and teachings

of Washington. His wisdom and foresight have been confirmed and vindicated after more than a century of experience. His best eulogy is the work he wrought, his highest tribute is the great republic which he and his compatriots founded. . . .

"With education and morality in their homes, loyalty to the underlying principles of free government in their hearts, and law and justice fostered and exemplified by those intrusted with public administration, we will continue to enjoy the respect of mankind and the gracious favor of Almighty God. The priceless opportunity is ours to demonstrate anew the enduring triumph of American civilization, and to help in the progress and prosperity of the land we love."

At the conclusion of the President's address, the University Hymn was sung and Bishop Whitaker pronounced the benediction.

The procession of the students was one of the largest undergraduate demonstrations ever seen in Pennsylvania.

The students formed on Thirty-fourth Street at 9.15, and collected about the placards located by the assistant marshals. The School of Philosophy and Seniors of all departments headed the procession, and were followed by the classmen of all departments in order of superiority.

Precisely at a quarter of ten o'clock the march began, and a squad of mounted police led the line down Walnut Street, the University Band preceding the students. At Eighteenth and Walnut Streets the line proceeded down to Locust, where the street had been cleared for the parade. By this time the procession of students extended more than four blocks. It is estimated that there were more than 2000 men in line.

President McKinley stood alone in front of Provost Harrison's home, 1618 Locust Street, and the students forming saluted him. At the Academy the Seniors entered the parquet and the remainder of the procession found seats in the amphitheatre.

Dr. W. A. Newman Dorland, Class of 1886, has been elected obstetrical registrar to the Philadelphia Hospital, and assistant obstetrician to the Hospital of the University of Pennsylvania.

Dr. Charles H. Frazier, Class of 1892, has been elected assistant surgeon to the Hospital of the University of Pennsylvania.

Dr. Franklin B. Stephenson, U. S. N., has lately translated from the Dutch a pamphlet on the sugar-cane louse in Java for Professor C. H. Fernold, A.A.S., of Massachusetts Agricultural College.

EDITORIAL.

RELATIVE EFFICIENCY OF WATER-FILTERS.

THE special report of Doctors G. Sims Woodhead and G. Cartwright Wood to the *British Medical Journal*, embodying the result of their investigations, carried out in the laboratories of the Royal Colleges of Physicians and Surgeons, contains much that is interesting and instructive. The following is a *résumé* of their conclusions:

The only filtering media which were found, on examination, to be efficient were forms of porcelain, compressed silicious earth, and natural stone. The pores in a perfect filter are never smaller than the diameter of a bacillus, as is demonstrated by the fact that all the filters at present known to scientific workers permit, under favorable conditions, of the growth of water organisms through their walls into the filtrate. It is assumed that the microbes are arrested in the fine pores of the material by a species of molecular or surface attraction, and remain there, unless the conditions are such that the organism is able to grow in the fluid as a long filament in contact with the surface of the pore till it arrives on the inner wall of the filter. It is assumed, accordingly, that the pores of such a filter are so fine that when an organism enters its lumen it comes into such close relation with the walls that molecular attraction comes into play, and its further progress is arrested. The difference in the action of different species of the efficient filters is probably to be attributed to the varying fineness of the pores occurring in their walls. Where the organism is brought into very close relations with the walls of the pores the porcelain appears to exert a distinct devitalizing influence on the water organisms, which either prevents their further growth or weakens them to such an extent that they appear in the filtrate only in an attenuated form. We cannot expect the channels in any medium to be quite uniform, and in all probability many of these at some part of their course would be so large as to allow of the direct passage of organisms, if this were not prevented by the channels opening into or leading from such larger pores being of a smaller diameter, corresponding to the channels preponderating in the filtering medium. The thickness of the layer of filtering material employed will be not merely that which is theoretically required to furnish a sterile filtrate, but that which gives the candle sufficient rigidity to withstand the process of

cleansing, and, if necessary, sterilizing, without being subject to the risk of breaking. The point, however, to which we wish particularly to draw attention is that the efficiency of the filtration depends entirely on the nature of the filtering material employed,—that is to say, on the average size of the pores traversing its substance, and not on the mere thickness of the filtering material.

We are unable to support the view that either cholera or typhoid fever germs can find a suitable breeding ground in any of the ordinary filtering media, and that from this cause the filter may continue to infect the water supplied. We have been unable to find any evidence that either of these organisms can multiply in water, even when highly polluted with sewage, and are strongly of opinion that the presence of disease-germs in the filtrate from an infected filter is not to be ascribed to their multiplication, but to the germs originally introduced being gradually washed through the receiver. We regard the experiments with perfect filters, fed with raw sewage, where disease-germs were unable to grow through into the filtrate, as strongly supporting this view. The history of epidemics spread by means of drinking water are also against the assumption that germs multiply in this medium, since it has been observed that where a supply has been accidentally contaminated, but where the contamination has afterwards been cut off, the epidemic which originates through the drinking-water does not continue to spread, as one might legitimately expect if the germs were undergoing multiplication. It may be suggested, however, that the organic matter which has been retained in the pores of the filter may afford them sufficient nutritive pabulum; but the experiments which we have described with filters which had been in prolonged use, sterilized and unsterilized, give no support to this hypothesis. We do not, indeed, deny that these germs can multiply outside the living body; indeed, we believe that both are capable, under favorable conditions, of undergoing a saprophytic stage, but we believe that the necessary conditions are wanting under the circumstances we are at present considering.

The efficiency of a filtering medium depends on the size of the channels by which it is traversed, and, of course, on their regularity. In our examination of the different filters at present in use, we found only three substances which have supplied an efficient filtering medium,—porcelain or paste, compressed diatomaceous earth, and natural stone. It must be noted, however, that all porcelains do not arrest the direct passage of organisms, and that those which are capable of furnishing a sterile filtrate vary greatly as regards their output and the obstruction which they offer to the growth through their walls of water organisms. The most perfect filter, from the scientific point of

view, which we have seen is undoubtedly one in which clay is mixed with finely powdered asbestos; but, unfortunately, the rate of filtration is so slow that the use of this filter for domestic purposes appears to be out of the question. Inasmuch as the more pervious porcelains can be relied on to arrest the passage of infective disease-germs, they are naturally much more suitable for all practical purposes. The compressed diatomaceous earths furnish a much less perfect filter from the strictly bacteriological point of view than the porcelain; they are nevertheless capable of arresting the passage of disease organisms, and have the great advantage of affording a larger output. We regard this rapidity of filtration as an all-important point in discussing the applicability of any filter for domestic purposes. For this reason we are of opinion that experiments carried out with the more porous materials, such as diatomaceous earths or natural stone, rather than with denser media, such as porcelain, are more likely to lead to the production of the filter of the future. Natural stone affords an abundant supply of filtered water, but, as we have already stated, we have not had an opportunity of submitting this substance to as searching and prolonged an investigation as we could have desired. We do not know, for example, whether under more prolonged use the output would not become so seriously diminished by the collection of organic matter in the pores that its filtering efficiency could not be restored by the process of brushing. We must now, however, regard natural porous stone as one of those substances which can be used for the construction of an efficient filter. The only other substance which has been said to yield a sterile filtrate in scientific experiments is asbestos. The experiments which we have carried out with various forms of this material have not yet yielded satisfactory results, but they have indicated the possibility of sterile filtrates being occasionally obtained under special conditions in a laboratory experiment. In our opinion, however, this material must at present be regarded as absolutely unreliable, inasmuch as its want of rigidity must always render it liable to the organisms being washed through in course of time into the filtrate. It has, in addition, the great advantage that in most cases it has to be replaced from time to time with fresh asbestos wool, when the efficiency of the filter will vary, so that the filtering mechanism cannot be sent out by the makers as tested and warranted to be efficient in its filtering capacity. It is quite possible, however, that this material may come into use when combined with some rigid supporting material, when it might present certain advantages over the other materials at present in use.

We should like again to insist upon the necessity of all the water required for domestic purposes being filtered, where it is considered

necessary, that the water to be used for drinking purposes should be subjected to the process, and that this should be effected with as little trouble as possible, otherwise the person or persons to whom this duty is relegated may be tempted to neglect the filtration of the water to be used for household purposes. If the water-supply is considered open to pollution, and accordingly recognized as a source of danger, all the water consumed must be subjected to the process, if any reliance is to be placed on it. We ourselves have had occasion to observe that where a filter has been attached to a pipe the servants soon learn how to disconnect the filtering mechanism, so as to obtain quickly the water which they require, and thus obviate the necessity for waiting during the time occupied by its passage through the filter. If the process of filtration is to be relied upon, as in the case of waters which are known to be subject to contamination, the filter should be fixed either in the cistern, or, if attached to the top, should be arranged in such a manner as not to allow of its being tampered with by those making use of it.

We have in this report kept specially in view the suitability of any filter to be used continuously for the filtration of water for domestic use, but we may here refer to the special use of filters in cases of emergency, such as an outbreak of epidemic typhoid. We have seen recently, in the cases of Maidstone and Lynn, that householders, although warned to boil their water, are either unable or unwilling to take the trouble to carry out this process in the thorough and complete fashion which is necessary to prevent infection. We believe that in such cases perfect filters, such as some of those we have described, have for this purpose an important sphere of usefulness.

MEDICAL PROGRESS.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM PEPPER, M.D., LL.D, AND JAMES TYSON, M.D.,

ASSISTED BY

M. HOWARD FUSSELL, M.D., AND A. O. J. KELLY, M.D.

Mitral Stenosis: A Statistical Inquiry.

Samways (*British Medical Journal*, February 5, 1898) has analyzed the post-mortem reports of all the cases of death at Guy's Hospital in the ten years 1886 to 1895 inclusive, in which stenosis of the mitral orifice was found present. The results appear to me sufficiently interesting to be worth recording.

In 4791 necropsies during this period there was a total of 196 cases (about 4 per cent., therefore, of all examined) in which the mitral orifice measured three and a half inches or less. If the measurement exceeded three and a half inches (two fingers), the stenosis was considered doubtful and neglected. The stenosed orifice exceeded two and a quarter inches (one finger) in circumference in 108 instances, and measured two and a quarter inches (one finger) or less in 85. It is not clear from the statistics in which of the two catalogues three cases should be included. Of the 196 cases, 107 were females and 89 males.

The average age of death for the males was thirty-eight and one-third years; that for the females was also thirty-eight and one-third years. The average age of death for the cases of severe stenosis (one finger or less) was thirty-three and six-tenths years; for the less severe cases (one to two fingers, or two and a quarter to three and a half inches), forty-three and six-tenths years. The average was the same for males and females.

In 32 cases the heart is stated to have weighed twenty ounces or upward. Of these 24 were males and 8 females. The heaviest, that of a female, is entered, probably incorrectly, as thirty-one ounces.

In 32 instances tricuspid and mitral stenosis were present together. Of these 21 were females and 11 males. The tricuspid stenosis accompanied almost exclusively the severe form of mitral, which included 24 of the total 32 cases. In 28.2 per cent., therefore, of the more severe cases (one finger or less) of mitral stenosis, tricuspid stenosis was also present, whereas in only 7.4 per cent. of the less severe was stenosis remarked on the right side. The presence of tricuspid stenosis at all with these less severe forms would seem to indicate that it was not consequent on the severity of the mitral stenosis; and that its frequent association with the more severe stenosis is due to a common cause, severe or general enough to affect both orifices, while producing considerable contraction of the mitral.

The tricuspid orifice measured less than three inches in circumference in

4 cases only, and between three and four inches in the remaining 28. The orifice was not considered stenosed if the circumference exceeded four inches.

In a large proportion of all the cases the aortic valves were thickened, distorted, or otherwise defective, but were seldom referred to as stenosed.

Neglecting the reports for the year 1886 (which were not made with sufficient care to be useful for most statistical purposes), there remain 77 cases of the severe, and 96 of the slighter form of mitral stenosis for the nine other years. In the 77 severe cases the left auricle is entered as greatly hypertrophied in 22 instances, as hypertrophied (to what extent is not indicated) in 17 others, and as slightly hypertrophied in 5 more. In the 96 less severe cases it was considerably hypertrophied in 14, hypertrophied (amount not indicated) in 2 others, and slightly in 5 more. Auricular hypertrophy, more or less considerable in amount, was therefore recorded as present in 44 of the 77 cases of severe mitral stenosis, and in 21 of the 96 slighter cases,—that is, in more than half of the one, and in less than a quarter of the others; it is, therefore, associated especially with severe stenosis.

The left auricle is recorded in the 77 cases of severe stenosis as much dilated in 14, dilated (amount not stated) in 18 others, and slightly dilated in 7. Among the 96 less severe cases it was much dilated in 8, dilated (amount not indicated (in 15, and slightly dilated in 6. Dilatation would, therefore, seem, on the whole, to be more marked at the necropsies on the severe than on the slighter cases, but the statistics are not carefully enough recorded for conclusions of much value to be drawn on this point.

In the 77 cases of severe stenosis the right ventricle was given as considerably hypertrophied in 22 cases, hypertrophied (amount not defined) in 15 others, and slightly hypertrophied in 4. Hypertrophy, therefore, was present in 41 of the 77 cases; making thus about the same proportion as given for the hypertrophy of the left auricle. In the 96 cases of slighter stenosis hypertrophy of the right ventricle was considerable in 11, was present (amount not recorded) in 8, and slight in 6; which again differs but little from the proportion given for the auricle in these cases.

In the 77 severe cases the right ventricle was stated to be greatly dilated in 16, dilated (amount unrecorded) in 18, and slightly in 6. Among the 96 slighter cases dilatation of the right ventricle was considerable in 7, was present (amount unrecorded) in 17, and slight in 3. The right ventricle is therefore evidently more likely to be found dilated at the necropsy in cases of severe than of slight stenosis of the mitral orifice.

The left ventricle was generally normal or small; rarely enlarged by either hypertrophy or dilatation.

Of the total number of cases 23 were from the surgical wards, where death was not due to asystole from organic lesion. In 3 instances, though stenosis was present, dilatation of the left auricle was only found on 4 occasions. Dilatation of the auricle would therefore appear to be but rarely associated with mitral stenosis not directly fatal; hence it probably appears late in the disease, causing or accompanying cardiac failure.

Pericarditis had been present in nearly one-third of all the cases, and frequently where no definite pericarditis could be traced there was an unusual quantity of fluid in the pericardium. The pericardium in thirty-five instances was universally adherent. The influence of this pericarditis on cardiac hypertrophy or dilatation could not be determined from the statistics.

Sudden death occurred in at least 7 cases.

Advancing age—60 and upward—seems to be a factor in the development of stenosis of the mitral orifice, as it was found on 19 occasions in persons of this age, in only 3 of whom was there a history of previous rheumatism. Dilatation of the mitral orifice appears more likely to be followed by dilatation of the left auricle than does stenosis.

Statistics further indicate that a presystolic murmur is heard some time in the course of the disease in about three-fifths of all cases, and a thrill in about one-third or rather less; while a history of rheumatism may be traced in upward of 60 per cent. of all cases.

The above statistics are, unfortunately, limited in their value and accuracy by the post-mortem reports, from which, with some assistance from the ward reports, they are taken. The records of necropsies are sometimes very vague and unsystematic in their account of cardiac lesions. This applies especially to the manner in which hypertrophy and dilatation of the ventricles and auricles are recorded and distinguished.

Röntgen Rays in Diagnosticating Arteriosclerosis.

Carl Beck (*New York Medical Journal*, January 22, 1898) says the proofs of the immense usefulness of the Röntgen rays in surgery are overwhelming. Their value in internal medicine has not as yet been made so apparent; but with better interpretation of the shadows, the significance of the rays in the obscurer ailments will be convincing to the mind of the most sceptical. A striking example of this may be found in the diagnosis of arteriosclerosis. According to the text-books on internal medicine, the thickening of the tunica intima cannot be recognized if it is confined to a small area or to single foci. It hardly needs to be emphasized how important it is to know whether, in a given case of sclerosis of the radial artery, there exist foci in other vessels besides. Nor can it be indifferent what the number of these obstructive foci is, and whether an aorta or a temporalis is concerned. If such foci are recognized at an early stage, proper prophylaxis can accomplish a great deal in preventing secondary disturbances. The prognostic significance of an exact knowledge of the condition of the arteries is also evident. The Röntgen rays give us a most reliable method of ascertaining the condition of the vessels, and this in nearly every part of the body.

The Basis of One-Twentieth a Simple Method of Dose-Determination for Children.

Victor Cox Pederson (*New York Medical Journal*, January 22, 1898) says there are two rules—namely, that of Dr. Young and that of Dr. R. O. Cowling—in general use with physicians and dispensers in prescription-writing for children. Both are open to at least two very great objections: *First*, there is the fact that the dose determined in accordance with each for young children is too large for many potent and frequently employed remedies. *Second*, there is the difficulty in mentally applying either rule with accuracy and ease to both the metric and apothecaries' system. Under any circumstances the selection of a dose depends on many factors. (1) With reference to the patient we have to consider general condition,—nutrition, size, weight, development, sex, and habit; (2) concerning the drug itself,—we must constantly remember whether it is a fluid or a solid preparation, an alkaloid, a glucoside, or any other active

principle; (3) with regard to administration, the physician must consider the avenues,—stomach, rectum, cellular tissue, skin, etc.; (4) with reference to the disease, its type, form, and severity of the attack must be taken into account. Although these considerations determine dose, yet all of them must rest upon the basis of age until adult life is reached, because development, weight, size, and nutrition must be estimated in terms of the normal for a given age. The writer's method, the basis of one-twentieth, is the following: *A* consider a subject twenty years of age, all other things being equal, to be able to bear full therapeutic dose. *B* the proportionate dose for any age, twenty years or less, is found by taking one-twentieth of the full therapeutic dose and multiplying the result in integral years, or in years and fractions of years, or in fractions of years alone. Hence is obtained the formula $x = \frac{D}{20} \times A$, in which x = dose to be arrived at, A = age as expressed above, D = full therapeutic dose. Therefore a patient one year old would receive one-twentieth of the full therapeutic dose; one two years old, two-twentieths; three years old, three-twentieths, and so on.

The Mortality of Tetanus with and without Antitoxin.

Owens and Porter (*Journal of the American Medical Association*, November 13, 1897) report three cases of tetanus, one treated symptomatically and two with antitoxin. All proved fatal. A study of the published cases shows two facts,—viz., that mortality rates have been but little influenced by the treatment with antitoxin, and that the relation of the period of incubation to the mortality is practically the same whether the antitoxic serum is or is not employed . The writers have analyzed twenty-six cases in which the serum had been used, and found twelve recoveries and fourteen deaths, giving a mortality of 53.8 per cent. Of those patients who recovered, the shortest period of incubation was six days; of those who died, the longest period was twelve days. They are, therefore, of the opinion that those cases in which symptoms appear before the sixth day will die in spite of any antitoxin treatment, and those in which the development of symptoms is delayed beyond the second week will invariably recover. The Medical Bureau of the Columbian Exposition treated 202 cases, in which nail-punctures had been received during the erection of buildings, in most cases the puncture being made by a rusty nail. Their treatment was as follows: (1) Thorough cleansing of the part with a solution of bichloride of mercury, 1 to 1000; (2) trimming the edges of the wound; (3) swabbing out the wound with a probe lightly covered with cotton, and dipped in a 95-per-cent. solution of carbolic acid; (4) drainage; (5) antiseptic dressing; (6) rest. Tetanus did not develop in a single case. This shows the value of the preventive treatment, which ought to be followed rather than to place dependence upon any possible good effect of serum administered after tetanus has developed.

Antiseptic Treatment of Acute Otitis Media.

Arthur H. Cheatle (*Pediatrics*, January, 1898) says the introduction of antiseptics has entirely altered the treatment of acute abscesses in all parts of the body. The same method of treatment is applicable to acute median otitis. In cases of fracture of the base of the skull involving the temporal bone, if the meatus is thoroughly purified and antiseptic dressing applied, no septic infec-

tion occurs. One of the great objects in the treatment of acute otitis should be to prevent further infection from the meatus. The first thing to be done, then, is to purify the auricle and meatus; to introduce a light plug into the meatus and apply a dressing and bandage to the auricle; then, if rupture occur or an incision be made, meatal infection cannot occur. When discharge occurs after rupture or incision, the dressing is changed as often as is found necessary, gentle mopping with a soft wool mop moistened in one to forty carbolic or gentle syringing with the same solution, fairly hot, being used to clear the meatus. Any cause in the naso-pharynx, etc., must be treated in the same way. To purify the auricle I use one to twenty carbolic or strong mixture (a solution of one to twenty, in which is $\frac{1}{500}$ part of perchloride of mercury); the auricle and cartilaginous meatus being firmly rubbed; an instillation for a quarter of an hour being used for the deep meatus; all foreign matter being first gently syringed out with one to forty carbolic solution. The dressing that serves well is double cyanide gauze, used in single layers, and thoroughly wrung out in one to forty, to dissolve out the irritating soluble cyanides. Less irritating solutions may suffice, but little trouble is caused by the strong solutions beyond desquamation. In whatever way performed this antiseptic treatment gives excellent results.

Levant Fever.

Smith (*American Journal of the Medical Sciences*, January, 1898) reports a case of the above disease. The patient, a native of the United States, went to Syria to live. She developed a remittent fever, which lasted four weeks, disappeared for three days, and again reappeared for four weeks. The fever lasted until January, 1897, when she came to America.

Careful examination of the blood, by Dr. Smith, showed no material change in size or number of corpuscles or in hemoglobin. In about one-third of the number of blood-corpuscles there were observed forms which resembled closely the hyaline intracellular forms of the malarial organism. No pigmented forms were observed. The large forms were central and took up one-half of the corpuscle. Segmentation was not observed. No free pigment was observed in the blood. In treatment there was no response whatever to large doses of quinine. There was no enlargement of the spleen.

The author goes on to say that while it must be admitted that the organisms observed resemble very closely some of the forms of malarial organisms, there are many features about the case which would suggest that it is not malarial in origin, for there is no free pigment in the blood, there is no marked degeneration of the corpuscles, no enlargement of spleen, and the disease is resistant to quinine.

Chronic Symmetrical Enlargement of the Salivary and Lachrymal Glands.

Osler (*American Journal of the Medical Sciences*, January, 1898) reports in full a case of this rare condition.

Hannah, aged 11 years, colored, was first admitted in March, 1894. There is no satisfactory history of relatives. On examination: The child is well nourished; the eyes are a little prominent. Both parotid glands are symmetrically enlarged and stand out prominently and tilt up the lobes of the ears.

They are painless, and have a board-like hardness. Both submaxillary glands are enlarged, firm, and hard. The sublingual glands can also be seen as a prominent nodular mass beneath the skin. The lachrymal glands are so much enlarged that they curve outward, causing an unnatural bulging just above the outer canthus of each eye. Just within the lower lip there is an enlargement of the mucous glands. There is a group of enlarged buccal glands. The spleen was enlarged. Urine normal. In October, 1894, it was noted the right parotid gland was smaller than the left. There were slight changes in the other glands. There was no material change in the blood.

In January and February, 1895, an affection of the nose occurred which was considered syphilitic.

In April and May the enlargement of the salivary glands disappeared; and in September a note was made of the complete disappearance of the enlarged glands, with a reduction in size of the spleen.

This case improved under mercury and iodide of potassium. Kümmel has reported a series of nine cases such as the above, and both he and Mikulicz regard the disease as a chronic infection of as yet unknown origin. The enlargement of the glands may persist for months or years; causes no general disturbance; is painless. The condition occurs, as a rule, in persons in the middle period of life. Kümmel has made a careful study of the enlarged glands, and finds a complete substitution of the normal tissue by leucocytes. He suggests the name achroöcytosis. The condition is not serious, but unsightly. Arsenic seems to have been of benefit in some cases. If this fails, iodide of potassium should be tried.

SURGERY.

UNDER THE CHARGE OF

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ASSISTED BY

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A Lumbo-Iliac Incision for Suppurative Appendicitis.

Grenda (*Médecine Moderne*, No. 71), at the Moscow International Congress, discussed the indications and advantages in the treatment of suppurative appendicitis of an incision made along the external border of the sacro-lumbar mass of muscles, and extended forward at the lower extremity parallel to and at a distance of about an inch and a quarter from the anterior superior iliac spine. This incision, it is held, is indicated in every case in which the local signs suggest the existence of a retrocecal appendicular abscess. The diagnosis of a purulent collection of this kind could be based on tenderness over Petit's triangle, there being but little, if any, pain at McBurney's point, or marked fulness and a sensation of resistance in the right flank, and in a clear sound on percussing the right iliac fossa.

In cases in which the situation of the purulent collection is not clearly indicated, the surgeon might still perform the lumbo-iliac incision. If the

appendix, instead of being placed behind the cecum, be found on one side or in front, it may still be readily exposed by the iliac incision. This incision exposes the cecum and appendix by the most direct and sure way. It is less likely than the ordinary incision to result in infection of the peritoneal cavity, and it enables the surgeon to avoid the dissection—often difficult and dangerous —of any loops of small intestines which may be found interposed between the cecum and the anterior wall of the abdomen.

The situation of the wound allows of perfect drainage and tends to secure the patient against the subsequent risks of hernia.

Dislocation of the Semilunar Cartilage of the Knee.

Barker (*Lancet*, September 18, 1897) has operated upon six cases of partial or complete dislocation of the semilunar cartilage of the knee. From a study of the knee-joint during operation he satisfied himself that if the internal meniscus, which was the one affected in all his cases, is completely dislocated, no amount of manipulation or movement of the joint can restore it to its original position. Even if this were possible, the action of flexion would immediately drag it into the joint again. The knee is by no means a simple hinge-joint, and the mechanism of its movements is far from clear, either in the dead or living. What appears to take place is this: In the first place, during flexion the point of contact between the femur and tibia appears to shift backward a little, which of itself would relieve the pressure on the anterior curve of the meniscus and push the posterior curve backward. But, in addition, it would incline the internal lateral ligament somewhat backward, and in this way drag the semilunar cartilage back through the attachment to the lateral ligament. Apparently, one at least of the functions of the posterior crucial ligament is to prevent the femur from slipping too far backward, for it is rendered tense during flexion. Whether the explanation of the causes of the displacement of the meniscus be correct or not, the fact remains that during flexion in the living joint it may be seen to slip backward. The actual dislocation, however, is due to the nipping of the edge when the limb is extending, which fixes it between the two bones and prevents it from moving forward, while the capsule, being rendered tense by extension, is torn away from it more and more until there is nothing to prevent the cartilage from again slipping into the middle of the joint. It follows that in a knee-joint in which a partial slipping has more than once occurred, an operation should be performed which will prevent the complete dislocation from taking place. If there is complete dislocation there is more reason for immediate interference before the semilunar cartilage becomes altered in shape and texture. The cartilage should be stitched to the capsule of the periosteum, and only removed in those cases in which its form is greatly altered.

Operative Treatment of Tuberculosis of the Testicle.

Duplay (*Semaine Médical*, 1897) advocates an operation for primary tuberculous disease of the testicle which aims at removing with the knife all tuberculous foci of testicle or epididymis. Relapses after curetting and cauterization are frequent. This fact led Duplay first to perform the operation in cases in which there was suppuration; later he performed it successfully in non-suppurating cases. The tuberculous foci are dissected out with a bistoury, whether

their seat is in the testicle or epididymis. A free and roomy incision is made, and the tuberculous focus is dissected out as in the case of a neoplastic tumor, no attention being paid to the superficial tissues which may have to be cut out of the way. The foci are removed one by one. Suppurating cavities and fistulæ must be completely removed. If the foci be located in the epididymis the organ must be separated from the vas deferens; if the lesion have invaded the testicle itself the tunica albuginea and the healthy glandular tissue are incised so as to eradicate all diseased tissues; the edges of the albuginea are then sutured with fine catgut, and afterwards the skin is sutured.

THERAPEUTICS.

UNDER THE CHARGE OF

HORATIO C. WOOD, M.D., LL.D.,

AND

ARTHUR A. STEVENS, M.D.

The Therapeutics of the Thyroid Gland.

Wells (*Journal of the American Medical Association*, 1897, Vol. xxix) states that when the thyroid preparations are administered to animals experimentally or to man therapeutically, effects are produced which can be separated into two classes: (*a*) Nutritional: The process of metabolism throughout the body undergoes a marked change, which is shown best by the urine. This is considerably increased in quantity, it contains a greater amount of urea, as well as chlorides and phosphates, as has been shown experimentally by Roos, and clinically by Napier and others. At the same time the weight of the subject diminishes, particularly if it be above normal, because of fat deposition. This decrease in weight is constant and considerable, and Wendelstadt has been able to demonstrate that but one-sixth of the loss can be attributed to the nitrogenous compounds, as shown by the increased nitrogen content of the urine, the rest being due to loss of water and of the fat itself through oxidation. (*b*) Nervous: Of these the most prominent clinically is the palpitation of the heart, which is a certain indication that the dosage has been carried too far. With it come headache, nausea, and vomiting, and if the remedy be pushed still further the pulse and heart weaken to a dangerous degree. Sometimes glycosuria is produced, which can be attributed to some action on the diabetic centre, since it may develop into a true diabetes mellitus. Schäfer has also shown that, if thyroid extract be injected into the veins of healthy dogs, there follows an immediate fall of blood-pressure, without any considerable change in the rate or force of the heart-beat, due to dilatation of the vessels throughout the body. Passing over myxedema and cretinism, in which the good effects of the administration of thyroid extract are acknowledged, of 584 cases of simple goitre about 82 per cent. were relieved. From his analysis of goitrous glands the suggestion is made that not only does the normal American gland contain a much greater amount of iodine than does the German gland,

but also that this amount is necessary to inhabitants of this country, so that the gland will hypertrophy to keep the iodine content up to the standard, as was shown in the report of two cases of the hyperplastic variety, from patients of foreign birth, but who had been for many years resident in this country. In both the iodine content was close to the American average. Exophthalmic goitre generally becomes much worse under this treatment, and the patient is relieved on its cessation. In obesity this failed to produce some improvement in but six of 145 cases. This, however, is not permanent, except in a few instances, unless the patient adheres to a system of dietetics and exercise. In all probability the benefits of this treatment are due to the increased metabolism in the tissues, producing the same results as vigorous and general exercise,—*i.e.*, a burning up of the superfluous carbonaceous materials in the body. In insanity it seems to be of value as a cerebral stimulant when the higher cortical cells are energic after attacks of acute insanity; but its use is conceded to be dangerous in acute mania and melancholia. Of skin-diseases, scleroderma offers a more favorable field, and improvement in all cases (Bramwell and Abraham), but no cures are reported in lupus.

Prophylaxis of Nephritis in Scarlet Fever.

Alfaro, of Buenos Ayres (*Anales del Circ. méd. Argentino*, October 15; and *Journal of the American Medical Association*), prevents altogether this dangerous complication of scarlet fever by observing the following precautions: (1) Keep the diuresis abundant with a strict milk diet, plenty of drinks, and cold hydrotherapy in severe cases. (2) Avoid the elimination by the kidneys of any irritating substances either from medication or from the food (avoiding phenol, salicylic acid, antipyrin, acetanilide, etc.). (3) Keep the functions of the skin as active as possible by general friction with fatty substances and tepid bath during desquamation. (4) Keep the mouth, nose, and pharynx aseptic with frequent mild antiseptic applications to prevent the introduction of the streptococcus into the general circulation. (5) Avoid sudden or continued exposure to cold air. (6) Use no antipyretics or antiseptics that could possibly affect the kidneys injuriously by elimination or absorption.

Intubation Before and Since the Use of Antitoxin.

Halsted (*New York Medical Journal*, Vol. lxv, 1897) reports thirty-four cases of intubation done prior to the use of antitoxin. Of these, twenty-six died, eight recovered,—mortality, 76 per cent.; recoveries, 24 per cent. Mortality under five years, 70 per cent.; recoveries, 30 per cent.

Twenty cases are reported as having been operated upon in conjunction with antitoxin. Of these cases five died, fifteen recovered. Mortality, 25 per cent.; recoveries, 75 per cent. Mortality under five years, 30 per cent.; recoveries, 70 per cent. The average time during which the tube was worn in the cases which recovered was a little less than five days.

From his experience the author draws the following conclusions:

(1) Laryngeal diphtheria, in any epidemic, is never mild, but has always had a mortality of from 90 to 95 per cent., reduced by operation, intubation or tracheotomy, to from 72 to 76 per cent.

(2) The report of his cases shows a mortality of intubations without serum of 76 per cent.; in conjunction with serum of 25 per cent., and, eliminating

cases of death within twenty-four hours of injection, a mortality of 10 per cent. The reduction of mortality from 76 to 10 per cent. is to be credited to antitoxin.

(3) Antitoxin should always be administered as early as possible, and in laryngeal cases without waiting for the bacteriologist's report. If this is done it will usually prevent an extension to the larynx, or, if the larynx is already invaded, an early injection will frequently cure without need of operation.

(4) No child should be allowed to die of laryngeal stenosis without an operation, preferably intubation, and serum should be injected at once, regardless of the stage of the disease, as most desperate cases often end in recovery.

Salipyrin in the Treatment of Influenza.

Bekess (*Wiener medicinische Presse*, August 15, 1897) remarks that the treatment is mostly symptomatic. In the beginning, as in all infectious diseases, he gives a laxative, preferably calomel, in doses of from two to five grains for adults (one-tenth the amount for children). The calomel is divided into three powders, given at intervals of an hour. As long as the fever lasts, rest and a fever diet are indicated. Formerly he gave internally, three or four times daily, three grains of quinine, four grains of acetanilide, from ten to fifteen grains of antipyrin, and from ten to fifteen grains of sodium salicylate.

Since 1890, however, he has used salipyrin almost exclusively, not only in influenza, but also in ordinary catarrhal affections, rheumatism, and neuralgia. He prescribes as an evening dose fifteen grains (seldom twenty to thirty grains), and as a morning dose generally half that amount, although at times he gives from ten to fifteen grains. For children he prescribes from one-tenth to half these doses, according to age. He has never noticed any unpleasant after-effects from its use, and has never been compelled to resort to larger doses than those mentioned. With this remedy he has obtained, without a doubt, the best results, and now and then they have been almost phenomenal in character. He has noticed, like von Mosengeil, that the use of salipyrin must be continued for some time in order to achieve a good result. He prescribes ten grains at night for from three to five days after the fever has disappeared. Even after the temperature has fallen to the normal the patient should be confined to his room for a number of days. The complications are to be treated by the usual accepted methods of therapeutics.

The New Tuberculin.

Stempel (*Münchener medicinische Wochenschrift*, November 30, 1897) reports upon twenty-three cases treated in Mosler's clinic with the new tuberculin, 235 injections being given in all. Only early cases of phthisis were selected, and the tubercle bacillus was also found in the sputum. In only four cases was the maximum dose of twenty milligrammes reached, most stopping at eight, ten, or twelve milligrammes. The injections were given every second day; one-five-hundredth milligramme was used at first, and the dose was doubled each time, if there were no contraindications. With the larger doses a local redness was occasionally seen, and much pain was complained of for one or two days. Once urticaria was observed, but there was never any local abscess or infiltration. The general symptoms were often marked. The tem-

perature rose to 38° C., and in two cases to 40°. In two patients there was nausea and vomiting; here the injections were omitted for a few days, and then the last dose repeated. With the larger doses there was pain in the head, vertigo, etc. In two of the twenty-three cases there was a very considerable improvement. In six cases the improvement was very slight at first, and then the patients' condition remained stationary. In three others only five injections were given, and here no conclusions could be drawn. In another eight cases no change could be made out. In the remaining four cases the patients' condition became worse. The author does not necessarily attribute this to the tuberculin; in two of these cases, however, where the injections had to be omitted, the patients improved a little. In two out of the twenty-three cases there was laryngeal phthisis. In no case did the expectoration entirely disappear, and tubercle bacilli were still present in the sputum. It is very difficult to draw conclusions from these cases as to the specific action of tuberculin. There was no lasting unpleasant symptoms, but there was no cure. The results were not very different from those observed in many cases, owing to improved conditions of living, hygienic and dietetic measures, etc.

Sulphur in Septic and Tuberculous Ulcers.

Miller, of Edinburgh (*Practitioner*, February, 1897), praises very highly the application of sulphur in obstinate or recurrent ulcers and abscesses. Sulphur is non-poisonous, and when applied to fresh surfaces there are formed sulphuretted hydrogen, sulphurous and sulphuric acids, and it is these three products that act on the tissues. Being in *statu nascendi*, their bactericidal action is especially lasting and energetic. In fresh wounds and ulcers the sulphur is applied as a fine powder, in septic and tuberculous abscesses a 10-per-cent. glycerin emulsion is injected. The burning following the application of sulphur can be prevented by the addition of cocaine. The author says that under the sulphur treatment ulcers and abscesses that have before resisted every kind of treatment for months frequently heal within a week. Another of the advantages of sulphur is its cheapness.

OBSTETRICS.

UNDER THE CHARGE OF

BARTON COOKE HIRST, M.D.,

ASSISTED BY

W. A. NEWMAN DORLAND, M.D,

Hyperemesis Gravidarum.

A discussion on the hyperemesis of pregnancy took place at the sixty-fifth annual meeting of the British Medical Association in Montreal (*British Medical Journal*, October 23, 1897). J. A. Temple, of Toronto, believes that the pernicious form of vomiting is invariably accompanied by some patho-

logic condition, which may be discovered after death, if looked for. The theories regarding the etiology of this complication of pregnancy are numerous and various. The large majority ascribe the pathogenesis to reflex phenomena, originating in conditions present in connection with the pregnant uterus. Nervous temperament and hysteria are possibly not infrequent factors in this complaint. Hadra's toxic theory has many adherents. Recently Tumas has located a vomiting centre in the medulla, in close relation to the centre that presides over the generative organs. This centre shares in the reflex irritation of the generative centre, and this gives rise to efferent impulses along the pneumogastrics which result in persistent nausea or vomiting.

A. GILES, of London, with the view that some light on the subject of hyperemesis gravidarum might be derived from the examination of the causes of the ordinary vomiting of pregnancy, has analyzed the records of 300 cases in the General Lying-In Hospital of London. He found that in 33 per cent. of the cases there was no vomiting at all during the whole pregnancy. In 50 per cent. of the cases there was no vomiting during the first three months of pregnancy. Among primiparæ there was a close and consistant relation between the sickness of pregnancy and previous dysmenorrhea. Vomiting during the later months was frequently associated with hydramnion, twins, or an unusually large child. The vomiting, he believes, is due to a combination of three factors,—namely, (1) the exalted nervous tension which is found constantly in pregnancy; (2) the presence of a source of peripheral nervous irritation,—namely, the enlarging uterus; (3) an easy channel of outlet for this exalted tension,—namely, the vagus. He would divide hyperemesis proper into two distinct classes: (*a*) Cases associated with organic disease, and which are to be considered as accidentally complicated by pregnancy; (*b*) cases in which there is no organic disease. Dilatation of the cervix is useful in controlling the vomiting in many cases.

W. GARDNER, of Montreal, has seen dilatation of the cervix relieve the symptoms, in some cases very promptly, in others within a few days. As regards the ultimate procedure of emptying the uterus, he thinks that the tendency is to delay too long the operation, one which in itself is not without danger, especially in patients whose vitality is very low from inanition.

R. B. MAURY, of Memphis, said that in his observations of hyperemesis of pregnancy there had been neither versions nor displacements, nor had dysmenorrhea been a feature in the previous history. In treatment, he employs sedatives, hypnotics, and careful feeding by the stomach and rectum. When the patient showed signs of exhaustion by the rise of the pulse to 115 or 120, and the vomiting became dark-brown or blackish, he felt constrained to induce abortion without further delay. This should be done under anesthesia in most cases.

A. J. C. SKENE, of Brooklyn, thinks that while the vomiting of pregnancy remains a nervous functional derangement it is not serious. There is likely to follow the nervous derangement of some organic disease of the pelvic organ, liver, or stomach. The treatment should be based upon the complications present.

H. T. HANKS, of New York, thinks that every case must be treated on its own merits. The indications are to quiet nervous irritability, use suitable medicaments, feed judiciously by the mouth or rectum, and to allay all irritating outside conditions. The stomach should be thoroughly washed out if the gastric juice is defective and deficient. He would suggest as a general rule for

pregnancy of two or three months to dilate and deliver the ovum by forcible means, gently used, while the patient is under ether; for pregnancy of four to eight months to fill the lower zone of the uterus with iodoform gauze, leaving the internal os well filled with the gauze.

C. Jewett, of New York, stated that for subduing the reflex disturbance chloral and bromides are the most useful remedies. He administers them by the rectum in maximum doses of 120 grains a day. Locally, he has found satisfaction in the application of cocaine, combined with Copeman's method. Evacuation of the uterus is often too long delayed.

J. C. Cameron, of Montreal, believes that no precise rule can be formulated as regards treatment. Many obstetricians endeavor to relieve centric irritability by nerve sedatives, and to seek out and remove, if possible, peripheral irritants, but perhaps sufficient attention had not been paid to local treatment for the purpose of making the discharge-channel less facile. Hypnotic suggestion has been practised for the relief of hyperemesis gravidarum. Gauthier and Larat have obtained good results from the downward sedative voltaic current of low tension applied for fifteen to thirty minutes, the positive pole being placed between the clavicular insertions of the sterno-mastoid and the negative over the umbilicus. More recently Pozzi has reported excellent success with Tibone's method of the local hypodermic injection of cocaine. These good results from local treatment seem to show that sufficient attention has not been directed hitherto to this matter.

W. Japp Sinclair, of Manchester, thought it was well enough to employ adjuvants to sedation of the stomach and to aid its functions, but it was essential in cases which should come under the definition of hyperemesis to apply sedatives with a firm hand. He trusts chiefly to potassium bromide administered first by the rectum and then by the mouth until hebetude was produced, as in epilepsy. If the conditions do not improve under bromide with adjuvants, it is best to interrupt the pregnancy.

J. F. McDonald, of Nova Scotia, observed that blistering the cervical vertebræ had been useless in his own experience. Unmarried women were not so often afflicted with vomiting. Limited sexual intercourse or absolute abstention should be recommended. Pathologic vomiting was not the vomiting of pregnancy but vomiting in pregnancy.

Atresia of the Cervix in Labor.

Campbell (*British Medical Journal*, October 23, 1897) says that this condition is in all cases due to inflammation of the cervix which, in the early stages of pregnancy, leads to adhesion of the granulating surfaces of the cervical canal. When labor begins the upper part of the cervix yields and thins out, while the lower portion remains undilated, and the os is not to be discovered by digital examination. As labor advances the cervix descends, and finally appears at the vulva or even protrudes beyond the orifice in the form of a dark-red, thick-walled, fluctuating tumor, which becomes tense with every pain. The os is concealed by the perineum, and is to be sought for on the posterior aspect of the presenting mass. It may be median or to one or the other side of the middle line. When detected, its position is indicated by a small circle of brighter hue than the rest of the surface. The treatment consists in scratching with the finger-nail and then dilating with the finger. Rupture of the membranes should in all cases be delayed as long as possible.

Vaginal Septa.

According to Campbell (*British Medical Journal*, October 23, 1897) vaginal septa may be transverse or longitudinal. Very strong transverse septa are occasionally found. They have usually a central aperture which, in labor, may require to be enlarged by dilatation or incisions. During labor these septa may simulate atresia of the cervix. Longitudinal septa are more common and more likely to cause perplexity during labor. They may be confined to the lower half or two-thirds of the vagina, or may extend throughout its entire length, being then continued into the uterus. One compartment of the vagina is larger than the other as a rule, and usually the right. When the septum is complete, it is the rule for its upper end to give way during labor, leaving an opening between the upper parts of the two vaginal canals.

GYNECOLOGY.

UNDER THE CHARGE OF

CHARLES BINGHAM PENROSE, M.D.,

ASSISTED BY

H. D. BEYEA, M.D., AND H. L. WILLIAMS, M.D.

Carcinomatous Degeneration of Fibroid Tumors of the Uterus.

Rodemacher (*Centralblatt für Gynäkologie*, 1897, No. 41) holds that all cases of so-called carcinomatous degeneration of fibromyomata uteri are in reality simply secondary carcinomatous infiltration of the tumor from primarily diseased endometrium. He cites a case in which, on post-mortem examination, it appeared that two interstitial fibroids were undergoing carcinomatous degeneration. But upon careful study it became evident that the two neoplasms present were in reality invaded by cells from a malignant process which had developed in the endometrium. The mucous membrane covering one of the tumors was entirely replaced by carcinomatous tissue.

Prevention of Conception by Division of the Tubes.

Kehrer (*Centralblatt für Gynäkologie*, 1897, No. 31) recommends the division of the tube in order to prevent conception in patients suffering from chronic and wasting disease. Also in case of extreme pelvic contraction, when delivery would have to be accomplished by Cesarean section. For, the author holds, it would be far more rational to prevent conception in this way than to perform abortion after pregnancy had occurred.

By simple division of the tubes the desired result can be accomplished without removal of the ovaries or induction of the climacteric disturbances.

After experimenting upon rabbits, Kehrer found that neither hydrosalpinx nor pyosalpinx followed the operation, as might have been supposed.

He then applied his method of treatment in the following case:

The woman was 27 years of age, and had borne six children, two of whom died soon after birth. The other four were either idiotic or malformed. Abortion was performed upon the seventh at the fourth month, on account of the miserable condition of the mother, which had grown progressively worse after each labor.

After the usual vaginal incision, as in vaginofixation, the fundus of the uterus was drawn down into the wound, each tube was ligated in two places near the isthmus, and the tubes cut across between the ligatures, without, however, dividing the vessels.

Vaginofixation was then performed in the position of anteflexion.

Convalescence was without event, and the subsequent menstruation normal.

The special advantages claimed for this method are its simplicity and freedom from subsequent disturbances, especially atrophy of the genitalia and extinction of sexual desire.

In case the adnexa are found to be diseased, they are removed at the time of operation.

Carcinoma of the Uterus Complicating Pregnancy.

Olshausen (*Zeitschrift für Geburtshülfe und Gynäkologie*, 1897, Band xxxvii, Heft 1), outlining his treatment of carcinoma of the uterus complicating pregnancy, presents the diagnostic symptoms, and gives his own experience, in an article under the above title.

Irregular bleeding is a constant symptom, and may obscure the diagnosis of pregnancy. But the shape of the outline of the body of the uterus can usually be determined by careful examination, which should make evident the gravid condition. Carcinoma progresses with frightful rapidity in the pregnant woman, and during the puerperium, which is of the greatest importance in considering treatment. Owing to its rapid development, a radical operation should be performed as soon as the diagnosis is established.

Cases have been reported free from recurrence for from three to eight years after operation.

In the treatment of the condition four methods of operation are available.

(1) Total vaginal hysterectomy.

(2) Total vaginal hysterectomy after evacuating the contents of the uterus.

(3) Total hysterectomy by abdominal incision.

(4) Cesarean section with or without accompanying hysterectomy.

Olshausen recommends that during the early months of pregnancy, vaginal hysterectomy should be performed. The opinion has been expressed by the majority of writers that this form of operation cannot be followed after the fourth month. But Olshausen operated successfully on one case at the fifth month, and on another case at the end of the sixth, with good results in both cases.

Olshausen also reports four cases in which abortion was first performed, and the uterus then removed *per vaginam*. In each of these cases the patient made a good recovery. After evacuating the uterus he allowed from a week to ten days to intervene before performing hysterectomy. He also records four cases of vaginal hysterectomy following spontaneous birth or abortion. These patients also did well.

Olshausen is decidedly opposed to the combined method of operation in which the uterus is amputated through an abdominal incision, and the cervix

afterwards removed through the vagina, on account of the greater danger of infection and the greater probability of recurrence.

In two cases in which Cesarean section was performed, the mother in one instance died six months after of carcinoma, while in the other case septic infection followed and death resulted five days after the operation.

In cases requiring Cesarean section Olshausen recommends that after evacuation of the womb, the uterine wall be closed by suture, and hysterectomy then performed *per vaginam.*

Primary Tuberculosis of the Fallopian Tubes.

Kynoch (*Scottish Medical and Surgical Journal*, 1897, Vol i, No. 2) reports an interesting case in which death resulted from acute tuberculosis.

On post-mortem examination it was found that the primary seat of the disease was in the Fallopian tubes. From thence it had spread upward to the ovaries, peritoneum, liver, and lungs.

Within the cavity of the uterus a three months' fetus was found, and although no tubercular lesion could be demonstrated in the fetus itself, the placenta was found richly studded with gray tubercle.

Both tubes were greatly distended with a thick, caseous material, while the ovaries were filled with a semifluid cheesy material in which tubercle bacilli were demonstrated.

PATHOLOGY.

UNDER THE CHARGE OF

JOHN GUITÉRAS, M.D.,

ASSISTED BY

DAVID RIESMAN, M.D.

Contribution to the Chemistry of Amyloid Degeneration.

Oddi having shown the presence of chondroidin-sulphuric acid in amyloid tissue, Krawkow (*Archiv für experiment. Pathologie und Pharmakologie*, 1897, xl, Hefte 3 und 4, p. 195) searched for the occurrence of the substance in human and in horses' amyloid liver, in spleen and kidney, and found it in every instance. It was a constituent of the amyloid substance itself, not of the stroma. Its presence being thus constant for amyloid tissues in general, it became necessary to determine whether it was peculiar to this disease or occurred under other morbid or normal conditions. It was not found in the liver of chronic tuberculosis, purulent peritonitis, acute nephritis, and atrophic cirrhosis, nor in carcinoma of the breast, or melanotic sarcoma of a lymph-gland. In a fresh fibroma of the uterus a substance probably corresponding to chondroidin-sulphuric acid was discovered. In a study of normal tissues it was found that liver and spleen contained none, gastric mucous membrane a trace; aorta and ligamentum nuchæ contained it also. A study of invertebrates showed that

chondroidin-sulphuric acid occurs normally in cartilage and all tissues rich in elastic elements.

The Methods of Obtaining Amyloid Substance.—The organ is freed from its capsule and large vessels, minced, and washed first with cold water, and then with a weak ammonia solution. The liquid is poured off after a few hours, and the residue triturated on a wire screen. The triturated mass is washed in a weak ammonia solution until the washing fluid appears clear. The material is then washed in water and digested with gastric juice for three or four days at 39° C. The undigested portion, which gives with striking clearness the amyloid reactions, is washed first with dilute hydrochloric acid and then with water. The whole mass is then treated with ammonia solution in which the greater part is now dissolved. The insoluble part consists of small vessels and elastic fibres, and does not give the slightest amyloid reaction. The ammoniacal solution is filtered and treated with dilute hydrochloric acid, which produces a flocculent, sometimes gelatinous, precipitate, which is again subjected to digestion for twenty-four hours. But no further digestion takes place. After washing, the substance is again dissolved in ammonia water, precipitated with hydrochloric acid, the precipitate washed by decanting, and then on the filter with water, alcohol, and ether.

The amyloid substance thus obtained is easily soluble in weak alkalies, with difficulty in concentrated acids, and contains only a trace of phosphorus. It contains no more phosphorus than amyloid-free tissue (liver), and the inference is that the presence of phosphorus depends upon the admixture of nucleins. When these are removed the pure amyloid substance is free from phosphorus.

Regarding the Color-Reactions.—Krawkow shows that the iodine-reaction depends on the physical state of the amyloid, and is less valuable than that of the aniline dyes. Isolated amyloid gives response to the latter, but not to the former.

Krawkow then shows that amyloid is a firm ester-like combination of chondroidin-sulphuric acid and an albumin, and is insoluble in weak adhesions; the substance which after digestion in gastric juice becomes soluble, is a modified amyloid in which albumose has probably taken the place of the albumin. He also has obtained a substance identical with the amyloid of organs from the wall of the normal aorta of the horse. This is significant, since amyloid degeneration affects frequently the vascular system, particularly the small vessels, that is, those elements which normally contain chondroidin-sulphuric acid.

It is thus seen that amyloid substances occur in the normal body and that it is a peculiar combination of albumin and chondroidin-sulphuric acid, two normal constituents of the body. This is a further confirmation of the fact that nearly all pathologic processes have physiologic prototypes. In the normal arterial wall the amyloid substance is diffusely distributed, so to say, diluted, and for that reason does not give the color-reactions which are characteristic of the compact amyloid in degenerated organs.

Bacilli in Beriberi.

Nepveu (*La Semaine médicale*, February 2, 1898) describes three kinds of bacilli which he found in tissues carefully secured from cases of beriberi in Senegal. One is a large bacillus, six to ten microns in length and three-tenths

to four-tenths micron in width, which is found especially in the kidneys; second, a medium-sized bacillus, three to four microns long and three-tenths micron wide, seen especially in certain vessels, as those of the kidney; the third is a very small bacillus, occurring in enormous numbers in the blood. The first two are probably of the same nature; as to the third, Nepveu is inclined to think that it is probably derived from the others. [No opinion can, of course, be formed from these limited observations.]

Experimental Investigations concerning the Causes of Failure of Compensation in Valvular Heart-Lesions.

R. Bulint (*Deutsche medicinische Wochenschrift*, January 6 and 13, 1898) found that valvular lesions, produced artificially in dogs, led to cardiac hypertrophy, and that compensation could only be broken by disturbing the innervation of the heart, as by section of the vagus nerve. Fatty degeneration of the heart of itself is not capable of producing loss of compensation, as was shown by some experiments, in which he administered phosphorus to dogs with valve lesions. Although at autopsy the heart was found extremely fatty, compensation had been maintained. He concludes, therefore, that in the production of failing compensation disturbances in the nerve mechanism of the heart play a great *rôle*. The connection between the disturbance and the loss of compensation can at present not be explained.

Further Observations and Experiments in the Pathology of Graves's Disease.

Walter Edmunds (*Journal of Pathology and Bacteriology*, January, 1898) looks upon the enlargement of the thyroid gland in Graves's disease as compensatory, and finds the changes identical with those produced in the remaining part of the thyroid in animals after the removal of a part of the gland. His own as well as Schiff's, Horsley's, and Katzenstein's researches seem to show that the thyroid has no secretory nerve corresponding to the chorda tympani, and that any nervous influence that may exist is not central, but due to ganglia either in or in the immediate neighborhood of the gland; and, further, that, at least, the enlarged thyroid of Graves's disease is not primarily of central nervous origin.

Regarding the functions of the parathyroids in dogs, it seems as if they had as much—or more—to do with saving the animals from acute myxedema as the thyroid proper.

Experiments on monkeys showed that the extract of sheep's thyroids might keep off and relieve the symptoms following thyroidectomy, but could, as a rule, not save their lives.

Some excellent plates accompany the article.

CORRESPONDENCE.

THE NEWSPAPER AS A PREDISPOSING CAUSE TO CRIME—CORRECTION.

To the Editors of the University Medical Magazine:

Gentlemen,—Will you please make the following correction of my article which appeared in the January issue of the Magazine. The first word on the last line, page 225, "unnecessary" should have read "necessary."

Very truly yours,

Stanley Warren.

To the Editors of the University Medical Magazine:

Gentlemen,—Will you please state in the Magazine that my paper published in the January issue was read by invitation before the Section on Otology and Laryngology of the College of Physicians of Philadelphia, and oblige,

Yours very truly,

L. J. Hammond.

MISCELLANEOUS.

An Army Medical Board

will be in session at Washington City, D. C., during the month of May for the examination of candidates for appointment to the Medical Corps of the United States army, to fill existing vacancies.

Persons desiring to present themselves for examination by the board will make application to the Secretary of War, before April 15, 1898, for the necessary invitation, giving the date and place of birth, the place and State of permanent residence, the fact of American citizenship, the name of the medical college from which they were graduated, and a record of service in hospital, if any, from the authorities thereof. The application should be accompanied by certificates based on personal acquaintance, from at least two reputable persons, as to his citizenship, character, and habits. The candidate must be between 22 and 29 years of age, and a graduate from a regular medical

college, as evidence of which his diploma must be submitted to the board.

Successful candidates at the coming examination will be given a course of instruction at the next session of the Army Medical School, beginning in November, 1898.

There are at present three vacancies to be filled.

Further information regarding the examinations may be obtained by addressing the Surgeon General, U. S. A., Washington, D. C.

GEO. M. STERNBERG,
Surgeon General, U. S. A.

BOOK NOTICES.

How to Feed Children. By Louise E. Hogan. Pp. 235. J. B. Lippincott Co., 1896.

This book has the virtues and the faults of those of this nature, not written by a medical pen. Its light is largely a reflected one, since it seems to depend much more on the sayings of others, which are quoted to an extent somewhat tiresome, than upon the author's own opinions and experience. It throws, too, rather more responsibility upon the mother for the making of changes in the proportions of proteids, starch, and the like in the food, and for the choice of fruits, and so forth, than she can seasonably be expected to exercise with success.

Yet in many respects it is satisfactory. The section upon infant feeding is chiefly an expression of the views of Dr. Rotch, and therefore sound. The following chapters upon the use of cereal foods, eggs, meats, broths, and so on, contain many excellent comments upon the nutrient value of each, and numerous recipes for the preparation of different dishes. Later in the book there is another section devoted to recipes, many of them selected from different well-known works upon diet. There are also chapters upon laxative foods,—a matter much better left to the advice of the physician in charge, and dangerous in untrained hands,—nursery desserts, summer and winter diet, travelling outfits for feeding, and nursery dietaries and menus for different periods of child-life.

An almost necessary evil of a volume of 235 pages, devoted solely to the subject of the feeding of children, and intended primarily for mothers, is that it must contain far too much to permit it to be intrusted safely to the mother's hands, unless she is constantly under the supervision of a physician. The book had far better be in the doctor's possession, who will find it very useful, and for whom, indeed, it is partly intended by the author.

THE CARE AND FEEDING OF CHILDREN. By L. EMMETT HOLT, M.D., Professor of Diseases of Children in the New York Polyclinic. Pp. 104. Second Edition. D. Appleton & Co., 1897.

This little book, which appeared first in 1894, now enters upon its second edition. It was written as a guide to the scholars of the Training School for Nurse-Maids of the Baby Hospital of New York, the effort of the author being to give the nurses directions with "simplicity, brevity, and exactness with reference to matters of infant feeding and nursery hygiene." The contents consisted of a series of questions and answers of the nature of a cetechism or quiz compend. The same method has been followed in the second edition, but the section upon infant feeding has been entirely rewritten, and other sections considerably enlarged. Of favorable criticism we have much; of unfavorable, very little. There is little said about the nature of babies' garments, and this portion might be added to with advantage. The remarks upon various patented foods, found in the first edition, have been entirely omitted in this. This is good in that it ignores them entirely. On the other hand, the writer's earlier condemnatory remarks can no longer be read, and the reader of the second edition is consequently left in ignorance of his just objections to the use of such preparations. The elaboration of the article on artificial feeding of infants, dealing as it does with mixtures of varying percentages of the chemical constituents of the food, is almost too complex for the average nurse-maid, unless she has had the advantage of a training school, but very serviceable for intelligent mothers and trained nurses. The title is a little misleading, for one might expect the book to be a more complete guide for mothers, and to cover a much greater variety of subjects, than was the author's evident intention. In the matters of which it treats it is excellent and, like all of Dr. Holt's writings, clear and to the point.

ABOUT CHILDREN. By SAMUEL W. KELLEY, M.D., Professor of Diseases of Children in the Cleveland College of Physicians and Surgeons. Pp. 179. The Medical Gazette Publishing Company, 1897.

This volume consists of a series of lectures delivered before the Training School of the Cleveland General Hospital, and afterwards published in this form. The first lecture, largely introductory, discusses the peculiarities in the anatomy of infancy and childhood. Lecture II takes up the physiology of this period of life, including remarks upon growth, respiration, pulse, temperature, the development of the special senses, etc. Lecture III treats of various pathological conditions, including deformities, diseases, and accidents. This is a somewhat mixed group, extending from congenital syphilis to fainting and choking. The remarks made are eminently practical and useful, and can be read with profit by both nurses and physicians. Lecture IV is one of the most important of the book, considering, as it does, symptoms seen in sickness in children, and their interpreta-

tion. The subject is well treated. Lecture V covers a variety of topics, such as the general nursing of sick children and the nursing in certain special diseases, the use of stimulants and the employment of baths for the treatment of disease. This chapter, and the sixth and last, upon the feeding of children with general remarks upon the disposition, habits, and management of children, could be considerably extended with advantage, although they are very satisfactory as far as they go.

The book is written in a free and attractive style. Although couched in simple language it contains in some places rather more scientific information than the mind of the average nurse can well grasp, unless prepared by considerable previous medical teaching. It is not intended to be a complete treatise upon the subject of the care of healthy and sick children. For instance, there is nothing said about the clothing of children in health or disease, the hours for sleep, the exercising of children, and the like. It was the author's intention to treat almost exclusively of the nursing of children who are ill, and from this point of view we can heartily commend it. He expresses the hope in the preface that what he says may be of some use to the children and to those who have the care of them; and we feel confident that he will have been successful if what he writes is committed well to heart and mind.

Diseases of the Ear, Nose, and Throat and their Accessory Cavities. A Condensed Text-Book. By Seth Scott Bishop, M.D., LL.D., Professor in the Chicago Post-Graduate Medical School and Hospital; Surgeon to the Illinois Charitable Eye and Ear Infirmary; Consulting Surgeon to the Illinois Masonic Orphans' Home and to the Silver Cross Hospital of Joliet. Illustrated with 100 Colored Lithographs and 168 Additional Illustrations. One Volume, Royal Octavo, pp. xvi–496. Philadelphia: The F. A. Davis Co., Publishers.

Although the author of this volume expressly declares in his preface that it aims only at being a "key or introduction" to the more exhaustive treatises on these subjects, yet its five hundred pages make it a pretty large key for the purpose. If, on the other hand, we consider it as in competition with the many avowed and excellent textbooks of these specialties, we can scarcely admit that it is in their class. It is too bulky for the one and too meagre for the other. Nevertheless, coming from the pen of such an accepted authority as Dr. Bishop, it goes without saying that there is in the book not only a great deal that is of value to the student and general practitioner, but that, indeed, few specialists can read it without adding very materially to both their mental and technical equipment. The customary chapters on the anatomy of these special regions are omitted. If the book had been written solely for specialists, this omission would have aroused no criticism, but being addressed particularly to students and general practitioners with specialistic aspirations, why compel

them to procure some other work in order to obtain the requisite intimate knowledge of the anatomy of these parts? We find, however, certain topics whose discussion is particularly timely and interesting, —those which concern the mastoid operations, the results and present status of the antitoxin treatment of diphtheria, chapters containing the author's conception of the etiology of hay fever, and of the treatment best adapted to it, and, finally, some suggestions concerning the technique of intubation. As to the illustrations, the majority of which have been judiciously selected from other works, there is a mingling of the modern and antique, and of the latter a number, having outlived their usefulness, would have been wisely omitted. The few criticisms we have made have but little weight when contrasted with the many merits of the book, and it is one that we can cordially recommend to all those who are interested in the subjects of which it treats.

Orthopedic Surgery. By James E. Moore, M.D. Philadelphia: W. B. Saunders, 1898.

This work is written as a text-book for students and as a ready reference book for general practitioners. Its size has been reduced by a studied effort to eliminate all that is not practical. This work represents the result of the experience of a general surgeon who has taught orthopedics for ten years, and aims to occupy the middle ground between the surgeon who operates too frequently and the orthopedist who seldom operates. As a text-book its utility is doubtful, because the arrangement of the subjects is such that the students cannot grasp, but for general surgeons who incline towards orthopedics it will doubtless be a safe and useful guide. The treatment of abscesses is up to date, and represents modern methods. The subject of scoliosis is carefully considered, but too much attention has been given to the use of apparatus, although the writer states that he "wishes to emphasize the fact that jackets of any kind are indicated only in exceptional cases, and in them only until such time as the patient has gained strength and solidity enough to overcome the tendency to a very rapid increase of deformity." Some portions of the work are to be criticised. He states that "paraplegia requires no special treatment aside from the care of the bladder, bowels, and integument as in paraplegia from other causes."

Most orthopedic surgeons recommend recumbency with extension, fixation by means of apparatus and massage with electricity. Too much attention has been given to the operation of arthrodesis, and it would appear better to have omitted injuries of joints, since these are considered in all works on general surgery. The advice on "club-foot," the treatment of cold abscesses, and the operative treatment of tubercular arthritis in general is excellent, and highly to be commended. The photographs are remarkably fine, and add greatly to the value of the work. The author is to be congratulated upon the practical character of the work, and the publisher upon the handsome appearance of the volume.

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SYMPTOMATOLOGY AND COURSE OF YELLOW FEVER.[1]

By John Guiteras, M.D.,

PHILADELPHIA,

Professor of General Pathology and Morbid Anatomy, University of Pennsylvania.

Gentlemen,—To judge from the differences of opinion and the contentions that present themselves at the beginning of all epidemics of yellow fever, one would decide that the diagnosis of the disease was very difficult. Still, it seems to me that there is no infectious disease in which we have so many symptoms that we may almost call pathognomonic. We have at least three quite distinct symptoms that are not found in connection with other diseases and that in a more or less pronounced manner are found in all cases of yellow fever. Probably the best way of bringing out these special symptoms characteristic of the disease would be to describe a typical case as it presents itself and follow it through the several days of the disease. You will usually find that you are called to see a patient who has been taken sick in the early hours of the morning. This at once is rather a characteristic symptom distinguishing yellow fever from such diseases, at least, as one would be likely to confound it with,—namely, dengue fever and acute malarial manifestations. In malarial manifestations the attack usually begins later in the day. The yellow fever patient will tell you he has waked up in the night some time after twelve o'clock, feeling chilly sensations, not a distinct chill, accompanied with severe pains, pains in the head, pains along the back extending to the extremities. In well-marked cases of the disease these pains are very severe. They cause the patient to cry out and roll about in bed. Such

[1] Delivered at the University of Pennsylvania, January 31, 1898.

pains are not met with in any other acute infectious disease, except, perhaps, small-pox. However, these agonizing pains only present themselves in very severe cases of the disease. In milder cases it will be the usual headache that we find in any one of the acute infectious diseases, with pains along the back and in the limbs. These have been tormenting the patient ever since one or two o'clock in the morning. There has been, I repeat, no distinct chill. On your first visit, nine or ten o'clock in the morning, after the patient has been sick five or six hours, the characteristic facies of yellow fever may be already present. There is a peculiar expression, something characteristic about the face of the patient at that time that to me, at least, is the most characteristic symptom of the disease. Perhaps it is not sufficiently marked at that time, though in the majority of cases it will be. Perhaps you will have to wait until the afternoon, or possibly until the next morning, before the characteristic facies of the disease makes its appearance, but frequently it is present then and you are able to make the diagnosis. This facies of yellow fever may be described as follows: We find that the face is decidedly flushed, more so than it would be in connection with any other acute infectious disease at that early period of its manifestation. The eyes are injected, the color is a bright red, there may be a slight tumefaction of the eyelids and of the lips. Even at this early date you will find in connection with this injection of the superficial capillaries of the face and the conjunctiva an element of jaundice. The early manifestation of jaundice is undoubtedly the most characteristic feature of the facies of yellow fever. Now, this jaundice is very slight. You would be likely to overlook it unless your attention were specially called to it. There is really no distinct jaundice, but a slight yellow tinge masked by the injection of the superficial blood-vessels. You can bring this yellow discoloration out somewhat by causing contraction of some of the superficial capillaries. For instance, you can pick up a fold of the skin, and you will observe for a moment the yellowish discoloration in the traces left by the fingers. Again, you see this slight yellowish discoloration in the conjunctiva. You notice it occasionally coming and going with the varying positions of the eyeball, either as an effect of the action of the muscular contractions upon the capillary congestion of the conjunctiva, or as the result of the varying angles of reflection of the light. You will often see more distinctly at a distance than upon close inspection a slight glimmer of yellow pass over the eye. The same is true of the face; the face will be injected and red, as I have described; but at times, with the contraction of the facial muscles, as the patient attempts to speak, with the paling of the capillaries of the surface you will see again a slight glimmer of yellow pass over the surface. Now

this is very slight, and I can very well conceive that any one who has not been constantly looking for that symptom will overlook it. In the later stages of the disease—the second or third day—these waves are extremely characteristic. The redness begins now to assume a purplish hue, and the contrast between the two colors is very striking. Is there any other acute febrile disease characterized by a similar change of the face? You find a similar appearance of the facies in the early stages of measles and typhus fever, except that the element of jaundice is lacking in these two diseases.

What will be the temperature of the case at that time,—the morning of the first day? The temperature, as with all the acute infectious diseases, will vary considerably between 100° and 106° F. Very high temperatures early in the development of the disease are of unfavorable prognostic import. A temperature, on the other hand, between 102° and 103°, or very slightly above 103°, usually indicates a mild course of the disease. The chart I have upon the black-board gives a temperature of 103° on the first morning. The first evening and the second morning give us the same temperature. This is unusual. We are much more apt to have, as in other continued fevers, the usual diurnal range. On the second evening in this case the temperature rose to 103½°, and continued with slight variations up to the end of the fourth day. This is the usual duration in well-developed cases. But if we take into consideration all the mild cases of yellow fever, we would probably have to say that in the majority of cases the fall of the temperature that has taken place here on the morning of the fifth day would take place on the morning of the fourth day or the morning of the third day. In very mild cases of the disease the temperature may fall before the third day. Abortive or undeveloped cases may occur in children with a duration of twenty-four hours. Continuing with the history of our case, we find that the temperature does not fall rapidly, but that it has taken two and a half days to reach the normal. In a case that is to terminate favorably, when once the defervescence is initiated, it continues through a process of lysis of two, three, or four days' duration. In a great many cases of yellow fever of a severe type, though not necessarily fatal, there is a secondary exacerbation of the temperature within forty-eight hours of the period of remission. Such defervescence is usually not complete. In cases of recovery this secondary fever will last one, two, or three days, and is likely not to rise to the height of the initial fever. The chart you are looking at represents a severe, well-marked case of yellow fever, and still there is no secondary rise in temperature. In favorable cases the secondary fever will end by a short lysis. In fatal cases we may have a rapid and excessive rise of the temperature, or some one of the grave complications of

the disease may present themselves, or the fever may be prolonged, assuming a typhoid type. The latter cases are not necessarily fatal.

Let us turn now to other symptoms we would notice on the first day of the disease.

Irritability of the Stomach.—There may be slight nausea, or persistent retching and vomiting, with a burning sensation at the epigastrium and along the esophagus. The matters discharged will be, first, the ordinary contents of the stomach. Later on the vomitus will consist of mucus suspended in a colorless or greenish-gray, watery fluid.

The mind of the patient will be perfectly clear. Upon physical examination you will find no enlargement of the spleen or liver. Palpation of the abdomen will show that there is a considerable tenderness about the epigastrium,—the burning sensation is increased by pressure. You will also frequently notice marked pulsation of the abdominal aorta.

The Pulse.—The heart-beats at first correspond with the temperature. In the chart before us we have with a temperature of 103° F. a pulse of 90. This is a lower pulse-rate than what we usually find on the first day. Generally you will find the pulse to be 100 or 110 in connection with a temperature of 103°. Sooner or later in the course of the disease the pulse shows a marked tendency to fall. In this case it has been rather slow from the start. On the second or third day, while the temperature is still rising, the pulse will begin to fall. You see here how the temperature curve tends to rise towards the fourth day, whereas we have a distinct fall corresponding to that rise in the temperature. In the present chart you notice the pulse has fallen twenty beats, while the temperature has risen during the second and third day almost one degree, so that we have here on the evening of the third day a temperature rising from 102° to 103°, and a pulse of 74 or 75. This is extremely characteristic of yellow fever. You will frequently find in yellow fever temperatures between 103° and 104° with a pulse-rate running from 70 to 80. Now, as you see here, the temperature continued high on the fourth day, and there was an extra rise of the pulse of about twenty beats, corresponding to the temperature of nearly 104° of the fourth day, but then, after this exceptional occurrence, due perhaps to some accidental disturbance of the patient, we see the steady tendency of the pulse to fall with the fall of temperature until we have such figures as 50 and 48, when the temperature has fallen to the normal. The pulse may continue in the 40's for two or three days, and may beat as low as 30. This last feature, the very slow pulse accompanying the defervescence of yellow fever, is not characteristic of the disease, though it is more marked in yellow fever than in any of the infectious diseases; still we find it in several others,

as in erysipelas and pneumonia. In these and other infectious diseases we may have with a sudden defervescence a rapid fall of the pulse below the normal. The characteristic feature of yellow fever is the fall of the pulse with a steady or even a rising temperature.

To continue. Observing the patient, we find that the symptoms we have described of pains, retching, burning about the epigastrium, vomiting, palpitation of the aorta and peculiar facies, slight jaundice, —all these symptoms become accentuated on the second day. I have already called your attention to two of the symptoms that we may almost call pathognomonic of this disease: one is the facies, that I have described, and the other is this discrepancy between the temperature and the pulse.

We come now to a consideration of the third characteristic symptom of this disease. We find on the evening of the third day of yellow fever that albumin presents itself in the urine. Now I know of no acute infectious disease in which albuminuria will present itself on the second or third day of the disease, unless we have to deal with unusually severe cases. You might find albuminuria in the second or third day of intense pneumonia, you may find it in the very severe cases of diphtheria or erysipelas, but such cases of severe manifestations of acute infectious diseases we should only compare with intense cases of yellow fever, and in that case there could be no doubt as to diagnosis, because the characteristic symptoms would pronounce themselves clearly. I refer to mild cases, those that do not show to any pronounced degree the symptoms of the disease, and in these mild cases it is that the contrast is so great with the other acute infectious diseases in which you would not find albuminuria on the second or third day in the mild cases; whereas in yellow fever in mild cases that do not go to bed, cases of "walking yellow fever," on the second, third, or fourth day of the disease albuminuria will show itself. You will see from what I have said the importance of this symptom, and you should carefully watch for it. Remember that it may be quite transient. It is the albuminuria of a parenchymatous nephritis that varies in extent and in intensity to an extraordinary degree. We find on post mortem that some portions of the kidney show no evidences of acute parenchymatous nephritis, whereas other portions show it to a marked degree. The lesions may then be scattered in different areas of the kidney, and it is a lesion that tends to disappear very rapidly. Even in severe cases of yellow fever we find that the parenchymatous nephritis, with intense albuminuria and casts of all forms, will pass away very rapidly, so that in two weeks all traces of it have entirely disappeared. It is extremely rare to find any chronic form of albuminuria or Bright's disease follow the acute parenchymatous nephritis of yellow fever.

We find more frequently cases of chronic nephritis following almost any of the infectious diseases rather than in yellow fever. I say that this parenchymatous nephritis is transient, and therefore you are prepared to hear that the symptom albuminuria may be very transient. The albuminuria, in fact, may be present only on one day of the disease. There are many cases in which I have found albuminuria only on the second, third, or fourth evening of the disease. You should, therefore, examine the urine frequently, and I insist as an important point that the evening urine should be examined. In those cases in which only one examination has detected albumin in urine it has usually been in the evening. If the albuminuria presents itself on the first day of the disease, if it is well marked on the second day of the disease, then you are dealing with a severe case. Casts are usually found in connection with the albuminuria, and I have no doubt that they will be found always if a careful search is made for them. Of course, you may find cases of fever of any kind in individuals affected with chronic Bright's disease. But the chronic disease usually leaves unmistakable marks upon the patient. Now as to the presence of any of these symptoms that I have spoken of as characteristic of yellow fever in connection with dengue. Unfortunately, the descriptions that we have of dengue fever in our text-books and in special articles written upon this subject are to a great extent rendered worthless by the fact that in the majority of the epidemics of dengue, we have had existing at the same time cases of yellow fever. In the usual contention that characterizes the outbreaks of yellow fever, as to whether there be or there be not the much dreaded disease, we find cases pointed out as unusual cases of dengue fever, in which the albuminuria, the lowering of the pulse, and, to a certain extent, the peculiar facies point clearly to yellow fever. Such cases are not found in uncomplicated epidemics of dengue. The face may be quite injected in dengue, but there is never the element of jaundice. On the fifth or sixth day there may be some slight jaundice, as there may be in any acute infectious disease with gastric disorders. It never shows itself in connection with dengue on the second or third day of disease. You do find very frequently in dengue a marked fall of the pulse with the defervescence of the fever, but not a fall of the pulse at the time that the temperature is still arising. I consider these cases of dengue so described by some authorities were real cases of yellow fever occurring during an epidemic of dengue.

Now to continue the description of the case, and speak of other symptoms that will present themselves about the third or fourth day of the disease. At this time, with the fall of the temperature that is apt to occur then, accompanied with a marked fall of the pulse, the patient

will present a great amelioration of all the symptoms. Convalescence, in fact, seems to be established. The pains have completely disappeared, the stomach will still be irritable, but there is no vomiting, the burning that I have described has entirely disappeared, and the patient is comparatively comfortable. This fall in the temperature may be accompanied with considerable perspiration. This is to some extent due to the diaphoretic treatment so frequently employed in this disease. In a case like the one I have represented here upon the black-board this amelioration of symptoms would continue, and with final defervescence, fall of temperature to the normal, convalescence would set in. In cases in which there is a secondary rise of temperature, all the symptoms I have spoken of will begin to accentuate themselves again. The appearance of the face at this time, however, is quite different from what it was with the first rise of temperature. The bright redness of the first phase of the disease is replaced by the purplish color that I have spoken of, and then the jaundice becomes more and more marked and may be quite intense. There is no question then as to there being jaundice. Well-marked jaundice, then, purplish discoloration of skin, return of pain in head and extremities, usually not so well marked as they were in the early stage of the disease, the return of the gastric symptoms, the increase of the albuminuria, will follow the secondary rise of temperature. With the return of the gastric symptoms in this secondary stage of the disease we have one manifestation that is rather characteristic of yellow fever, characteristic at least of the very severe cases of the disease. There is now a change in the character of the vomit. In the grayish fluid I have described we will find minute dark streaks; the French describe these by the name of legs of flies. This is the first indication of hemorrhage into the stomach. Within twenty-four or forty-eight hours the hemorrhage will become more copious and the very characteristic symptom of severe yellow fever—black vomit—will present itself. We can foretell the coming of black vomit not only by the careful inspection of the matters vomited and the presence of these minute lines of black, but also by the general appearance of the patient. If you find the symptoms that I have spoken of in connection with this secondary rise of the temperature showing themselves in an intense degree; if you have, for instance, a very marked purplish discoloration of the skin; if the extremities become cold, the surface of the body covered with clammy sweat, the slow pulse lose its tension, the gums become spongy and bleed readily, the stomach becomes more irritable; if these symptoms be present to a marked degree, you may prognosticate the coming on of black vomit. At this time the act of vomiting is also somewhat different from what it was in the earlier stages of the dis-

ease. There is not the retching that was present in the earlier stages of the disease, but the vomit now gushes out of the mouth easily without any effort, always producing the intense pain and burning at the epigastrium and along the esophagus. It comes out with considerable violence, and the black vomit may be thrown out at considerable distance from the patient.

At this time the manifestations of acute parenchymatous nephritis will become more intense; and another characteristic symptom of this fever, and a very fatal one, is apt to present itself,—namely, suppression of urine. The urine has become more and more albuminous, the quantity has decreased, and finally it is completely suppressed. When this symptom presents itself in about twenty-four or forty-eight hours, in the very great majority of cases death will take place in uremic convulsions or uremic coma. In cases in which profuse black vomit manifests itself without suppression of urine death will come by exhaustion. Now, there are some cases of yellow fever of much longer duration than this which I have described as rather typical. In such cases the secondary rise of temperature may continue for four, five, or six days, may fall gradually by process of lysis to normal temperature, or the temperature may from the first lysis, after it has reached the normal, continue normal for a week or ten days without any indications of convalescence. We may speak of these as cases of a typhoid type. They still present the slow pulse and usually intense jaundice.

Now as to the condition of the mind in yellow fever. It is usually quite clear Of course, there are marked exceptions. In very severe cases we may have wild delirium developing in twenty-four hours. These are cases of very rapid development of the disease. Such cases may have black vomit on the second day of the disease. The mind is often clear in severe and fatal cases of the disease. The mind may be clear, for instance, until the uremic coma sets in. In the majority of cases, even when there is black vomit, there is a peculiar alertness. The patient watches everything going on about him with a peculiar intensity and liveliness. This may be due in part to the terror the disease inspires. The patient seems to watch for the doctor's opinion, or he seems to be anxious to demonstrate to everybody and himself that he has not the disease. He tries to listen to everything that is said.

The bowels are costive in the majority of cases. The stools, however, do not show evidences of biliary retention. Many cases present from the beginning distinct dysenteric symptoms. In later stages of the disease, when we have evidences of blood stasis and hemorrhages begin to occur, we are apt to have tarry stools.

Such are the more prominent symptoms of yellow fever.

PSEUDOLEUKEMIA INFANTUM.[1]

By Alfred Stengel, M.D.,

PHILADELPHIA,

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Gentlemen,—I introduce this subject for discussion with two purposes, first to offer objection to the term and to the description of the condition as a disease, and, second, to allude to certain facts regarding the morphology of the blood in early life. First of all, let me refer briefly to the clinical features of the condition in question.

This condition was described by von Jaksch under the title of "Anemia Infantum Pseudoleukemica," and has since been studied by many hematologists. It is not my purpose to enter into its description, but I wish only to call attention to certain of the facts which render the existence of this as a separate disease most improbable. Striking features in the cases von Jaksch first studied were enlargement of the spleen and liver, anemia, with extensive reduction of the number of red cells and marked leucocytosis. In one of his cases the red corpuscles fell to 820,000, and in the first three reported the white corpuscles bore a relation to the red of 1 to 20, 1 to 17, and 1 to 12. The most marked distinction from leukemia observed by von Jaksch is the fact that the children usually recover. He believes the disease a primary anemia, though different from true leukemia. Much the same condition was described by earlier writers among the Italians, and independent descriptions were published about the same time as von Jaksch's and subsequently. There are differences in detail, but the main facts are the same in the different descriptions. Occasionally the liver is described as small, sometimes as very large; sometimes the lymphatic glands are found moderately swollen, and in some cases there are general symptoms suggestive of a more or less acute infective process, while in others the disease is slow and progressive. In a minority of the cases a fatal termination has occurred, and in some of these autopsies have been performed. It is significant to note that the descriptions of the spleen and other organs in these cases in no way suggest leukemia. The splenic enlargement is due to chronic hyperplasia causing uniform induration and thickening of the trabeculæ. In a few cases perisplenitis or thickening of the capsule has been associated. The changes in the liver are similar though not

[1] Read before the Philadelphia Pediatric Society, January, 1898.

marked. In no case have there been described lymphomatous infiltrations, such as occur characteristically in leukemia. In one or two instances a redness of the bone-marrow has been found, but in these cases a ready explanation is found in the degree of anemia. Redness of the bone-marrow is characteristic of no particular disease.

Accurate descriptions of the condition of the blood are still wanting. Von Jaksch referred to the occurrence of very large leucocytes in abundance, to leucocytes enclosing red cells or fragments of such, to very large polynuclear neutrophile cells, and to the pronounced poikilocytosis and endoglobular changes resembling those described by Maragliano. Loos and Luzet have particularly referred to the abundance of nucleated red corpuscles, many of them showing karyokinesis. A study of all reported cases, however, makes it clear that no positive diagnosis could be reached by a study of the blood. Von Jaksch himself admits this, and suggests as factors warranting a diagnosis: the great reduction in the number of red cells, the degree of leucocytosis (less than in leukemia, greater than in other diseases), the unequal enlargement of the liver as compared with the spleen, and the tendency towards a favorable termination. He regards the condition as a definite disease, and denies the operation of certain precedent causes that have been suggested, notably rickets and syphilis. It is remarkable, however, that other authors have found one or other of these conditions as the probable cause in practically all cases. Among eighteen cases collected by Fischl sixteen were rachitic and the other two syphilitic; while Monti and Berggrün found rickets in sixteen of twenty collected cases. Either other authors fail to recognize the same condition as von Jaksch, or this author has had most unusual experience.

Certain writers have called attention to the resemblances of the blood-condition to that of pernicious anemia, on the one hand, and of leukemia on the other. While this is entirely true, it only serves to bring into prominence one point to which I wish to call attention,—namely, that the state of the blood alone should not be considered in the diagnosis of the blood diseases. It is but a few years since hematologists were willing to make the diagnosis of chlorosis from the blood. To-day such a step would be unwarranted. By the same strict adherence to blood examination alone a close relationship must be admitted to exist between pernicious anemia and leukemia, diseases which all other pathologic considerations would separate widely. Cases of apparent or real transformation of pernicious anemia into leukemia have been reported in considerable number, especially in former years, when neither disease was as well known nor as accurately studied by clinicians. Whether or not real transformation occurs, it is

certain that decided pathologic changes must take place ere such transformation can be established. Some writers have spoken of infantile pseudoleukemia as a connecting link between leukemia and pernicious anemia. So it is in respect to the condition of the blood, but the pathologic lesions, so far as known, do not warrant such a position to this condition. All facts at command would show that the state of the spleen and liver in von Jaksch's disease is hyperplastic and of the nature met with in congenital syphilis, rickets, and various other cachectic states, and never that observed in leukemia. Observations are lacking to show whether the ferruginous pigmentation of the liver occur as in pernicious anemia or not. The urine has not been satisfactorily examined. The facts being such, it is apparent that the intermediary position between leukemia and pernicious anemia rests upon the blood examination alone; and this is uncertain ground. A study of the blood in infancy shows very clearly that the conditions are quite unlike those observed in adults. I have been engaged, with Dr. C. Y. White, during the last several months in the study of the blood of some seventy-five cases of diseases of children; and though we are not yet prepared to report finally upon these, the examinations now completed (in forty-five cases) show marked differences from the conditions seen in adults. These results I may say are in accord with the results of others, and with the occasional blood-examinations I have previously made in young children. Among the striking features are these: Leucocytosis occurs much more readily in children than in adults; in the normal blood of children the mononuclear leucocytes are relatively more abundant than in adults, and this is still more marked in diseases showing leucocytosis; the mononuclear leucocytes are frequently excessive in size and commonly larger than in adults. I have not found a tendency to marked reduction in the number of red corpuscles even in severe illnesses. This I have attributed to possible inspissation of the blood. With exception of the behavior of the red corpuscles, the condition of the blood in the disorder now under consideration is easily explained on the ground of secondary anemia; and it must be added that marked reduction in the number of red corpuscles does at times occur in cases of secondary anemia of infancy. A large part of the reported instances of pernicious anemia of childhood are doubtless of this sort.

Some of the features to which I have called attention are illustrated by the specimen of blood I exhibit.

This was obtained from a child admitted to my wards in the Children's Hospital last year with evidences of well-developed rickets, with enlargement of the spleen and of the liver. There was pronounced leucocytosis, the blood counts showing 60,000 and 80,000

white cells at different examinations. The number of red corpuscles, however, was not greatly reduced. There were from 3,000,000 to 5,000,000 per cubic millimetre at different times. The stained specimen I exhibit shows the conspicuous number of mononuclear elements and the excessive size which some of these have attained. There are no nucleated red corpuscles, and the degree of anemia at the time this preparation was made was not considerable. The child succumbed after acquiring lobar pneumonia. This case does not correspond to von Jaksch's description as far as the red corpuscles are concerned; but the number and kind of leucocytes resemble very accurately many of the reported cases. Other cases of rickets show great reduction in the number of red corpuscles, and I have no doubt some cases may present a combination of the leucocytic features in my case and the marked anemia of other cases, and thus by the combination established a clinical picture not to be distinguished from von Jaksch's disease.

REPORT OF A SERIES OF FRACTURES OF THE ELBOW-JOINT, TREATED BY THE JONES METHOD.

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PHILADELPHIA,

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The object of this paper is not to excite afresh a discussion as to the best position, theoretically, in which to treat injuries about the elbow, for this question has been the subject of discussion since the time of Hippocrates to the present day, and still remains unsettled. It is my object rather to present a clinical report, which will itself demonstrate the advantages of treating the limb in the position of acute flexion when a fracture of the elbow-joint has been sustained.

Though there may be some surgeons with large experience who entertain no fear as to the ultimate functional result, or who, like one of our own surgeons, "approach an uncomplicated fracture of the elbow-joint with the same certainty of getting a good result as they do in the ordinary fracture of the lower end of the radius," still there must necessarily be a certain number of surgeons with a more limited experience and some general practitioners into whose hands these cases frequently fall, who do entertain some apprehension as to the ultimate usefulness of the limb, when a fracture of the elbow-joint presents itself to them for treatment.

I have chosen to call this the Jones method because, as far as I know, Mr. Robert Jones, of Liverpool, was the first to treat by this method a number of cases sufficiently large to make the results of value. In 1892–94 he handled about 250 cases of severe injury to the elbow with unquestionable success. This manner of dressing was suggested to him by the way in which his predecessor, Mr. H. O. Thomas, treated his patients with tubercular disease of the elbow-joint. The advantages claimed for this position by Mr. Jones are (1) that it allows of free circulation in the limbs; (2) that complete rest is obtained for the injured structures; and (3) that this position will prevent the exudation of callus in such a way as to hamper the joint movements. The original Jones dressing consisted of a Thomas halter, which is simply a bit of rubber tubing to protect the neck, through which a bandage is attached to a rubber band about the wrist. He was opposed to the employment of passive motion until the stage of consolidation had passed, on the ground that it increases the exudation of callus and causes more plastic effusion. When, however, the time to begin passive motion had arrived he slackened the sling so that the hand fell about a couple of inches. In three or four days the patient was asked to raise his hand to the position from which it dropped; if he succeeded, the sling could be dropped lower or altogether dispensed with. If, however, he failed, the sling was readjusted in its original position. Though we have here on record the successful results obtained in these 250 cases, a number too large to be ignored, it cannot be said that this method has received general recognition; but, on the contrary, it must be admitted that its employment is confined to a very limited number of surgeons. It has received, perhaps, more recognition in Great Britain than elsewhere, though it has some advocates in this country, among whom should be mentioned Dr. H. L. Smith, of Boston, and Dr. J. William White, of Philadelphia. The former carried out a series of experiments on the cadaver on the question of position in the treatment of elbow-joint fractures. The results obtained were so positive and so apropos of our subject that I feel warranted in giving a brief abstract of them at this juncture. The purpose of the experiments was to determine "at what degree of flexion of the forearm the fragments were held in the best position." The methods employed were somewhat as follows: The first experiments were made upon undissected arms. The desired fracture was produced by driving an osteotome through the condyle with a mallet, a vertical incision, about one centimetre in length, having been made above one or the other epicondyle. After the chisel had been driven as far as was deemed necessary the fragments were separated by prying. The fragment was then carefully examined as to its position,

ease of displacement, best method of reposition, in all positions of the forearm from complete extension to acute flexion. The same study was then made after the skin had been turned back, leaving the muscles exposed. Next, the various muscular layers were removed in turn until the behavior of the fragment, when covered with the ligaments and capsule only, could be studied. Finally, the ligaments were cut and the exact variety of fracture noted. The experiments number in all twenty-four. Of the internal condyle there have been seven; of the external condyle, four; of transverse fractures across the lower end of the humerus, four; of T-fractures, four; of the internal epicondyle, two; of special fractures with certain additional injuries for the solution of special problems, three.

As a result of these experiments the following conclusions seem to be justifiable:

(1) When either condyle of the humerus is broken into the joint, the fragments remain closely attached to the bone below, whose motion it follows.

(2) The fragments can be most surely replaced by the following manœuvre: forcible extension followed by pressure on the upper end of ulna, downward and forward, while the forearm is being pronated and flexed to an acute angle with the upper arm.

(3) In all these fractures the fragments are held most firmly in place if the elbow is tightly flexed; the next best position in this regard is the position of forced extension (not loose extension), while the greatest mobility is met with in 100 degrees of flexion.

(4) The essential factors in the locking of fragments in the position of acute flexion seem to be the coronoid process in front and the ligamentous and muscular structures behind.

This is a brief review of the experimental work that bears on our subject. We proceed now to the practical side of the question. In selecting a method of treatment, that one is to be preferred which will preserve both the free articular movements of the joints and the "carrying angle" of the arm. Limitation of motion is due to a variety of causes; either to displaced fragments, exudation of callus, infiltration, followed sometimes by ossification of the ligaments or capsule, and to the formation and organization of bands of adhesion between the articular and periarticular structures. Such, then, are the conditions with which we must successfully combat if we are to obtain good results, and by good results we mean joints free from ankylosis. It was clearly demonstrated by the experiments referred to that, if proper reposition of the fragments has been accomplished, there will be no danger of their displacement, provided the limb be dressed in the position of acute flexion. If for no other reason this one is almost

sufficient to warrant the selection of this position. It serves, however, another purpose, in that it prevents the formation of callus on the anterior surface of the articular end of the humerus, where its presence would greatly hamper the power of flexion, which is, as you know, more necessary to the ultimate usefulness of the limb than the power of extension. Furthermore, it is a well-known fact that the more perfectly approximated we can keep the fragments,—*i.e.*, the less liability there is to their displacement,—the less excessive will the callus formation be. Therefore when we are told that the position of acute flexion will accomplish these ends, will prevent displacement of fragments, and therefore does not predispose to callous formation, we cannot altogether disregard it.

The remaining causes of ankylosis—that is to say, infiltration into the capsule and ligaments, with perhaps organization and ossification of the exudate, the formation of bands of adhesions—must be handled in other ways. Here massage and passive motion must be employed as necessary adjuvants. Massage has grown already to be an important factor in the modern treatment of fractures; its advantages are now well recognized, and the physician or surgeon who does not avail himself of the benefits that accrue from it, is not considering the best interests of his patients. While I know that it is now very generally used, where money and time will allow, I am quite sure that in the great majority of instances it is not begun early enough in the course of the treatment. To my mind there is no reason why it should not be instituted in a very few days after the fracture. What does it do? In the first place it allays muscular spasm, an always distressing symptom; it prevents in a large measure muscular atrophy; it stimulates the absorption of the inflammatory exudate before it has become so organized and contracted that it restricts motion. These are all in themselves excellent reasons why it should be instituted early. Muscular spasm complicates only the earlier stages; muscular atrophy is an absolute surety unless some measures are adopted to prevent it; if we wait until the exudate becomes thoroughly organized it may then be too late, massage may be unsuccessful. On the other hand, various arguments are often advanced which favor the postponement of massage: it is undesirable to remove the dressing so frequently, or there is danger of disturbing the carefully reduced fragments. This may be true of certain fractures treated with certain dressings, but in fractures of the elbow-joint treated in the position of acute flexion, these objections do not hold good. This brings out another very decided advantage of the dressing we are advocating,—namely, that the limb from shoulder to wrist is perfectly free from splints, bandages, or dressings of any kind. Massage can be applied without altering the

position of the limb or disturbing it in any way. It must of course be applied judiciously at first, and not vigorously until the acute inflammatory signs have subsided.

After the physician has made up his mind in which position he is going to treat the limb, the question next uppermost in his mind will be, When shall I begin passive motion? If he refers to the various authorities on fractures, he will find that there is still a diversity of opinion on this particular point. In a series of inquiries made by Roberts, some six years ago, of the seventy-one who replied, there were sixty-four who began passive motion within four weeks and seven who postponed it until later. The arguments advanced by those advocating postponement are in this wise: If the conditions that bring about ankylosis are not present, then passive motion is unnecessary, for simple immobilization of a joint for any length of time will not result in restricted motion. If, on the other hand, the conditions that predispose to ankylosis *are present*, how are they affected by passive motion? If, as they believe, it not only does not improve but rather aggravates them, then it is distinctly harmful. Though the prevailing opinion of the present day is inclined to favor this view, there is still doubt in the minds of some whether, in the majority of uncomplicated cases, it is not better practice to begin passive motion just so soon as you feel sure that in so doing you run no danger of displacing the fragments. In the cases that I report passive motion was begun, on an average, on the seventeenth day. The possibility of displacing the fragments, which I believe at this time to be *nil*, is to my mind the only theoretical argument against this practice, for such disturbance would most certainly predispose towards increased callus-formation, which, with the possible displacement of the fragments, would naturally interfere with free movements of the joint.

But when we come to deal with the infiltrated capsule and periarticular structures, with the bands of adhesion that almost always form, will absolute rest offer the best prospects of a useful joint? Shall we absolutely immobilize the joint and wait till the infiltration and exudate become thoroughly organized, contract and rob the structures of their natural elasticity, or shall we not judiciously employ passive motion before these unfortunate phenomena have occurred, gradually stretching, but not tearing, the tissues, and thus prevent what ill effects might have come from absolute immobilization? The conditions, it seems to me, with which we are dealing here are not unlike those met with in the sprained joint. Do we nowadays in the latter case enforce absolute immobilization for several weeks by putting the joint up in a plaster cast, or do we employ a dressing which will allow

of free motion without any apprehension of the joint becoming ultimately stiff and painless?

On these theoretical grounds and from a practical experience with quite a number of these injuries, I favor the early and judicious employment of passive motion, and by judicious employment I do not mean flexing and extending the joint no matter what force may be necessary, for this is undoubtedly bad practice, but on alternate days gently flexing and extending the limb to an angle slightly exceeding that reached on previous occasions.

There yet remains to be considered a phase of this subject, to which, wisely or not, a great amount of attention has been paid by many of those who have made these injuries their special study. I refer to the humero-ulnar or carrying angle. This angle is due to the obliquity of the axis of the humerus and ulna, more especially the latter, to the axis of the joint, and its reversal is responsible for the so-called "gunstock" deformity, or cubitus varus, about which there has been so much discussion of late years. It is for the preservation of this angle that the extended position is so strongly advocated. It is generally conceded, however, that altogether too much importance has been attached to the carrying angle, for it has never been satisfactorily proven that a limb perfectly straight or even with a slight cubitus valgus is restricted as to its functional activity. As a matter of fact, if we examine a series of normal upper extremities, we find that the angle varies from minus five degrees to plus thirty degrees (Smith), and the owners of these arms with little or no angle, or even with one reversed, are never conscious of any abnormality, and are in no way crippled as to their wage-earning capacity. We cannot, however, altogether disregard this natural humero-ulnar angle, for it has one significant bearing in the treatment of these fractures, inasmuch as any deviation from the normal is indicative of improper reduction or of improper fixation of the displaced fragment. In almost every case it is due to the common upward displacement of the internal condyle. Therefore, for the prevention of the gunstock deformity, we must insist first of all on the reposition of this condyle to its normal site as the surest means of preventing the gunstock deformity. After this is accomplished, the arm should be placed in the position that will best prevent subsequent displacement, and this position we believe to be acute flexion, and not complete extension. To repeat, therefore, it is not the position in which the arm is dressed that will prevent the so much dreaded cubitus valgus, but imperfect reduction. The dressings which have been employed are all simple and uncomplicated. As mentioned above, Jones slung the arm to a leather collar around the neck. Post, of the Boston City Hospital, used a sleeve with tails at

either end long enough to tie around the neck. White, of this city, secures the arm in place with a broad piece of adhesive, attached to the forearm and hand, and continued on over the shoulder of the sound side; a few circular turns of a roller bandage are usually applied to secure better fixation. The dressing which I have found quite satisfactory is illustrated by cut facing page 407; it consists in a canvas or duck jacket, with a mitt sewed on to secure the hand. It has no particular advantage over White's dressing, except that it is somewhat more comfortable, especially in warm weather, when the adhesive plaster is apt to irritate the skin of the patient. The joint is entirely free from any dressing, so that it can be inspected at any time; and, furthermore, allows of the application of massage without the necessity of removing or disturbing the limb. The treatment of fractures of the humerus about the elbow-joint should consist in,—

(1) Perfect reposition of the fragments.

(2) Placing the arm in the position of acute flexion.

(3) Daily massage, beginning within the first week.

(4) Passive motion,—not delayed after the danger of displacing the fragments is past.

The advantages to be claimed for the treatment of fractures about the elbow-joint, along these lines, with a dressing such as has been suggested may be summed up as follows:

(1) When the fragments are properly reduced they can with difficulty be displaced.

(2) The formation of callus in such a way as to hamper the movements of the joints is prevented.

(3) The absolute fixation of the fragments is a safeguard against callus-formation.

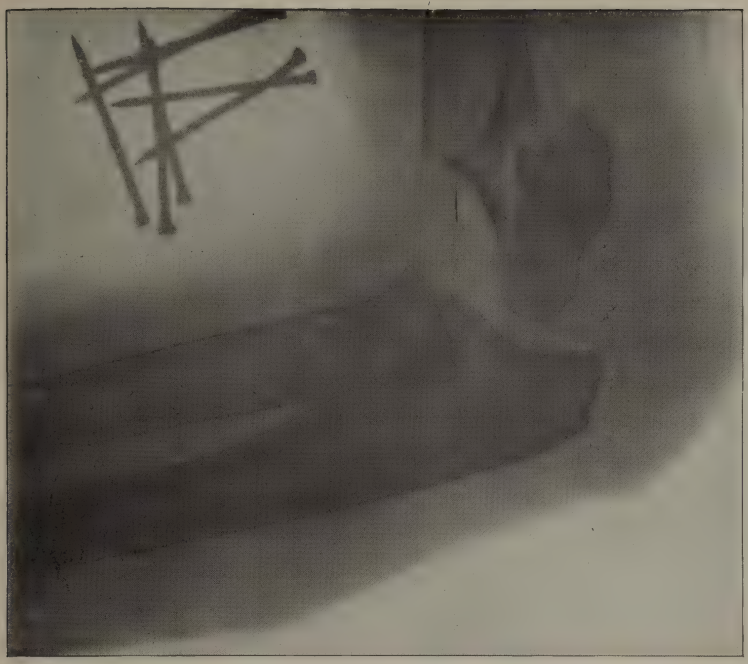
(4) If the reduction has been perfect, the danger of cubitus valgus or the "gunstock" deformity may be disregarded.

(5) The ability to dispense with splints and bandages has a threefold advantage: (*a*) It avoids the possibility of any interference with the circulation of the limb either by pressure or constriction. (*b*) It allows of a daily inspection of the injured part, without disturbing the limb in the slightest. (*c*) Massage can be applied at a very early stage without the necessity or danger of removing the dressing.

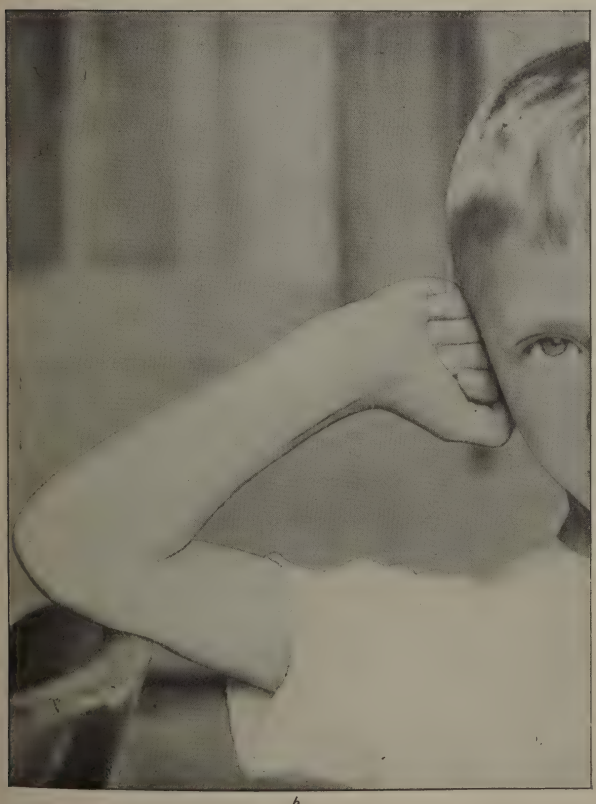
(6) The early institution of massage will hasten the absorption of any inflammatory exudate before the latter become organized, and will prevent to a great extent muscular atrophy.

(7) The early and judicious employment of passive motion will help to preserve complete functional activity, by stretching the periarticular tissues that have become infiltrated with the exudate, and by preventing them from contracting as the exudate organizes.

(8) To say the least, the position of acute flexion consults the



a



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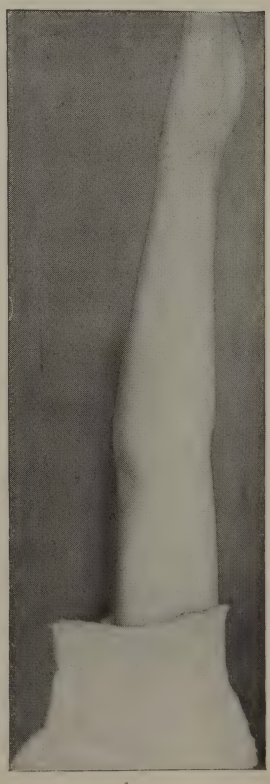


c

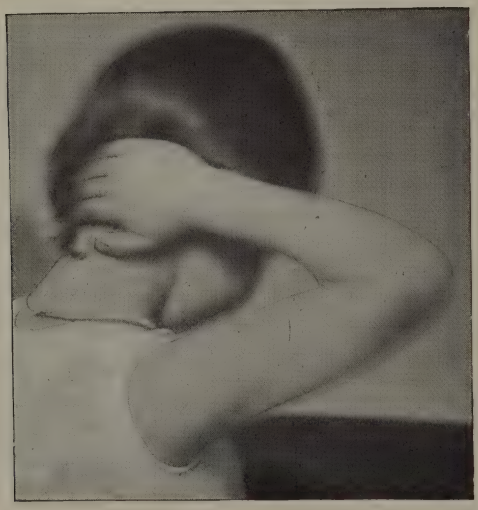
CASE I.—*a*, Supracondyloid fracture; *b*, *c*, showing range of motion at end of treatment.

Case II.—T-Fracture.

Case II.—Showing range of motion at end of treatment.

a

b



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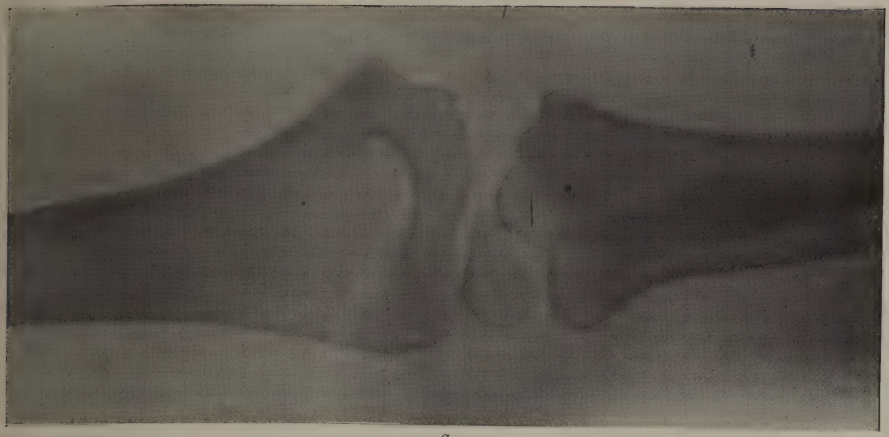
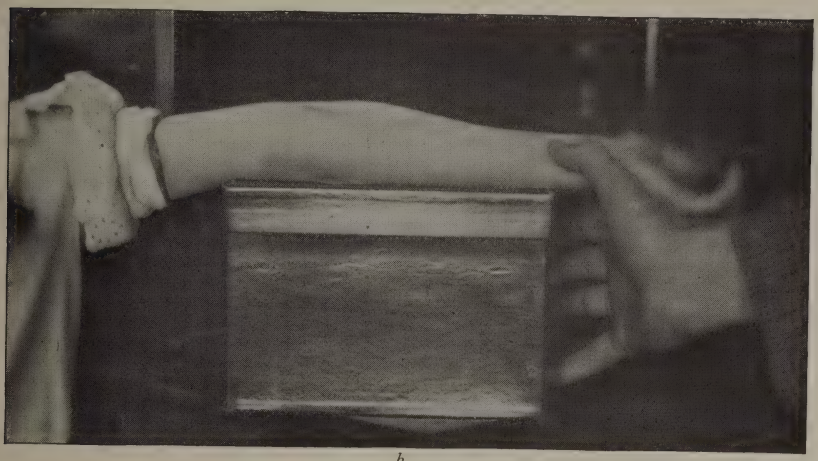
CASE V.—*a*, Supracondyloid fracture; *b*, *c*, showing range of motion at end of treatment.



a



b

c

CASE VI.—*a*, Fracture of external condyle; *b*, *c*, showing range of motion at end of treatment.

This dressing I designed for the purpose of doing away with the use of adhesive plaster, which is so irritating to the skin, especially of children; to keep the cutaneous surfaces of arm and thorax apart; and to allow of massage and inspection without its removal. It consists of an armless jacket, lacing up one side, with a mitt attached to the sound shoulder.

comfort of the patient. Forced extension is, as is well known, a most uncomfortable attitude.

(9) Should partial ankylosis result, as it sometimes will despite the strictest attention to every detail, an arc of motion ranging from complete flexion to incomplete extension is a much more useful one than that from complete extension to partial flexion.

(10) The simplicity of the dressing makes it available at all times and in all places. No specially constructed splint, no roller bandage, are necessary to retain the arm at least temporarily in the proper position.

The following is a brief description of each case:

Case I.—Samuel K., aged 9 years, sustained an injury to the left elbow by falling off a bicycle. A skiagraph demonstrated an oblique supracondyloid fracture running into the joint. The lower fragment was displaced backward.

Treatment.—Reduction of the deformity. Arm dressed in acute flexion. Patient discharged thirty-eight days after the accident. Function of joint perfect. Flexion and extension complete.

Case II.—Harry G., aged 5 years, sustained an injury to the elbow-joint by falling off the rear step of an ice-wagon, striking the joint on the pavement as he fell. A skiagraph demonstrated an oblique supracondyloid fracture into the joint, with chipping off of the external condyle, so that it might be termed a T-fracture.

Treatment.—Reduction of deformity. Arm dressed in acute flexion. Patient discharged on the forty-ninth day. Function of joint unimpaired.

Case III.—Harry C., aged 5 years. Patient sustained a fracture by falling off a velocipede, striking elbow on pavement. A skiagraph demonstrated fracture of external condyle communicating with the joint.

Treatment.—Reduction of fragments. Arm dressed in acute flexion. Patient discharged on the forty-ninth day. Functional result satisfactory.

Case IV.—Lizzie O., aged 7 years, fell on the pavement while playing, fracturing the elbow by direct violence. Skiagraph demonstrated a fracture through the internal condyle into the glenoid fossa.

Treatment.—Reduction. Arm dressed in acute flexion. Patient discharged thirty-nine days after the accident. Flexion and extension complete.

Case V.—Virginia C., aged 6 years, fell on the pavement fracturing the elbow by direct violence. Skiagraph revealed a supracondyloid fracture; the external condyle was chipped off and displaced downward.

Treatment.—Reduction. Arm dressed in acute flexion. Patient discharged on the fortieth day, with perfect restoration of functional activity in the injured joint.

Case VI.—Joseph H., aged 8 years, fell in the street on his elbow. Skiagraph demonstrated a fracture of the external condyle communicating with the joint.

Treatment.—Reduction. Arm dressed in acute flexion. Patient discharged on the thirty-fifth day. Result satisfactory.

In addition to these there were three others, an epiphyseal separation, a fracture of the internal condyle, and a T-fracture; but not being able to obtain a complete series of photographs and skiagraphs I have excluded them from this report.

Note.—I am indebted to Mr. Walter S. Riegel, of the Episcopal Hospital, for the accompanying skiagraphs and photographs. C. H. F.

A CASE OF PARASITIC CHYLURIA.

By Thomas D. Dunn, M.D.,

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M. W., aged 19 years, white, female, single, of German parentage, was born in Philadelphia. Her father died at the age of 52, from abscess of liver; mother still living, health poor, the result of overwork; has six living sisters and one brother, who are healthy. One sister died of pneumonia at 10 years of age. Always lived in Philadelphia until 1895, when she went to Altoona, Pa., returning November, 1896. No history of venereal disease. At the age of fifteen years she had scarlet fever, but had had no other serious disease prior to this, and had always enjoyed good health previous to February 9, 1897. She was then taken with severe headache, fever, nausea, and vomiting, marked stomachic pain and soreness; bowels constipated, also severe pain in back. No urine passed for forty-eight hours. She thinks the color of urine first voided was natural, but is not certain, and had further trouble as to suppression, but while quite well, she lost some flesh and was not so strong as usual.

Sunday evening, August 1, 1897, she was taken with a similar attack of headache and backache, nausea and vomiting, abdominal pain and soreness, but with a tendency to looseness of the bowels, instead of constipation, as in former attack. Voided urine at 3 P.M. naturally, and then not until Wednesday morning, August 4,—an interval of sixty-four hours.

I first saw her at my office Monday evening, August 2. She presented the symptoms previously stated; temperature, 102° F.; pulse, 112; abdomen sore; pressure over kidneys gave pain, but there was no evidence of undue distention of bladder. She was ordered to bed, with hot fomentations over abdomen and back, and five grains of citrate of potassium with one-third teaspoonful of sweet spirits of nitre, to be given in lemonade, every two hours, also five grains of phenacetin as required for headache. On Tuesday evening there was no material change, with the exception of less pain and fever,—the result of phenacetin.

The following morning I was sent a pint of milky urine, which had a decided layer of fat on the surface and sides of the bottle, which readily cleared with ether. Slight tendency to coagulation in the bottom at first, which ceased when the urine began to ferment. There was a very faint pinkish tinge to a small sediment, which also soon disappeared. Odor was offensive; reaction alkaline; specific gravity 1024, decidedly albuminous. The microscope showed red blood-cells, also white cells, which were probably lymph-cells, oil-globules, and many embryonic filaria.

A quantitative estimation of fat by Professor Cochran showed 2.2 per cent., the highest proportion of which I have found record.

The second passage, a few hours afterwards, was nearly free of the chylous character, and though scanty and passed infrequently the urine was clear and natural.

The hot weather and an active skin supplemented the urinary secretion. All acute symptoms subsided at once, although there remained some loss of flesh and strength, with decided pallor. Under a nutritious and liberal diet and iron tonic there was improvement in her general condition until Sunday evening, August 29, when she had another attack of headache and backache, stomach soreness, and pain passing through to back. Pulse, 108; temperature, 101° F.; slight swelling of hands and feet, with puffiness of face. Urine voided at 4 P.M., August 29, then none until September 2 at 3 P.M., which was chylous, and had the same deposit as former specimens, but had a thinner scum of fat on standing. When the urine started, the general symptoms at once disappeared, and the urine was entirely clear on the following day. She was again put on a tonic of iron, arsenic, quinine, and strychnine, and a liberal diet. She passed from under my care September 10, and I have only heard that, though somewhat debilitated, she has had no return of the trouble. August 10, at 11 P.M., the patient having had a quiet evening, I examined the blood and found several active embryonic filariæ, length about one-eightieth of an inch, and the width of a red corpuscle. The blood count showed

4,181,093 red corpuscles to the cubic millimetre, and one white to 350 red; hemoglobin about 75 per cent.

On September 5, after the second attack of suppression, I made another blood examination, but did not find the parasite. It was made, however, at 9 P.M., immediately after an active afternoon and evening. This seems to support the observation of Stephen Mackenzie, that if the habits of the patient are changed and he is active at night, sleeping during the day, the periodicity is reversed.

Two varieties of chyluria have been recognized, one non-parasitic, the result of some abnormal communication between the lacteal and lymphatic channels with some part of the urinary tract; the other parasitic, in which the filaria sanguinis hominis has a definite causal relationship.

How and where the communication between the urinary and lymphatic systems is established is, as yet, not known. Dr. Vandyke Carter, in 1861, advocated the first view, and that diseases allied to chyluria, such as elephantiasis, lymph scrotum, lymph hydrocele, etc., are due to communications between dilated lymphatics and the surface.

In 1866, Wucherer, of Bahia, discovered the embryo of filaria in active motion in chyluria. In 1870, Dr. Lewis, of Calcutta, discovered, independent of Wucherer's discovery, the nematoid worm of chylous urine, and in 1872 he found the parasite in the blood of a chyluric patient,—a Hindoo.

Dr. Bancroft, in 1876, discovered in a lymphatic abscess of the arm a dead parent parasite, and Dr. Lewis, in 1877, found two living parent worms—male and female—in a case of nevoid elephantiasis of the scrotum.

In 1880, Dr. Manson, of Amoy, discovered the parent worm, a mature female, in a lymph scrotum. He thus describes it: "A long, slender, hair-like animal quite three inches in length, but only one-one-hundredth inch in breadth, of an opaline appearance, looking, as it lies in the tissues, like a delicate thread of catgut animated and wriggling. A narrow alimentary canal runs from the simple club-like head to within a short distance of the tail, the remainder of the body being almost entirely occupied by the reproductive organs. The vagina opens about one-twenty-fifth of an inch from the head; it is very short, and bifurcates into two uterine horns, which, stuffed with embryo in all stages of development, run back and nearly to the tail." The male worm is much smaller and much less frequently seen. The female produces an extraordinary number of embryos in her habitat,—a lymphatic duct,—which enter the blood through the lymphatic channels. The embryos are in a shell, which is elongated and scarcely

perceptible, and in no way impedes its movements. They are about one-ninetieth of an inch in length and in width the diameter of a red blood-corpuscle. In an autopsy on a chylous patient, Dr. Mackenzie found dilated lymphatics and the thoracic duct plugged with embryos, which caused the accidental communication between the chyle-bearing vessels and the urinary tract. In 1878, Bancroft and Manson discovered the embryo in the stomach of a female mosquito, which acted as an intermediary host. The mosquito attacks the filarial patient at night, and gorges herself with blood, and then deposits the ova in water. The human subject drinks the water and the embryo penetrates the lymphatic system, there develops into sexual maturity and produces myriads of embryos.

Dr. Lewis, of Calcutta, found in his servants' house, in eight mosquitoes caught at random, four had embryos of filariæ. The periodicity in which the embryos are found in the blood is very remarkable. During the day they are almost entirely absent, but are found usually at night, when the individual is asleep.

Dr. Mackenzie, as stated before, found if the habits are changed, the patient working at night and sleeping during the day, their activity was reversed. It is not known where they are concealed during the day.

Dr. Osler records a case of chyluria in which no filariæ were found, which lasted thirteen years. He believes there is a non-parasitic variety of the disease, but offers no explanation.

Lymphatic tumors, lymph scrotum, in fact the lymphatic system in any part of the body, may be plugged by the embryos. The disease is rare in this climate, and the few cases that are seen in a temperate climate are mostly contracted where it is endemic, as in the East and West Indies, China, Brazil, Cuba, Bermuda, and Australia. Many districts of these countries enjoy a complete immunity, while Manson found in his researches at Amoy that one out of every ten Chinamen taken at random has filariæ in his blood. It depends entirely upon the distribution of the filariæ. A few cases have contracted the disease who have never travelled; such may be explained by the fact that mosquitoes may have been brought to our shores by vessels trading with tropical countries. Such is the probable explanation of the disease in the case reported above.

THE VALUE OF THE RÖNTGEN RAY AS A MEANS OF SURGICAL DIAGNOSIS.[1]

By Charles Lester Leonard, A.M., M.D.,

PHILADELPHIA,

Department of Clinical Surgery, University of Pennsylvania.

The advantages prophesied for surgical diagnosis from Röntgen's discovery have in a great measure been realized. No greater proof of the value of this method can be found than the rapidity with which it has been adopted as a routine method by the most conscientious and skilful surgeons of to-day. The exact knowledge and the confirmation of diagnosis that it gives has made it an essential in surgical practice, and those desiring the best results for their patients demand in every case this additional means of acquiring a knowledge of the true condition.

A technical knowledge of the electrical phenomena involved is not the only essential to a successful use of this method in surgical diagnosis. The observer must combine with it such surgical and anatomical knowledge as will enable him to correctly apply the method to each particular case, and at the same time avoid distortions and other sources of error. He must also be capable of correctly interpreting the results which he has obtained.

Probably the most striking use of the Röntgen rays is the location of foreign bodies in the tissues. This at first was thought to be very easy, as two pictures could be taken in most cases, locating the body in two directions. This method is perfectly satisfactory if the pictures are taken in the same plane of the limb and approximately the plane of the foreign body. There have, however, been numerous instances in which the surgeon was unable to find a minute foreign body even after such apparent localization. This has been shown to be due to errors that readily creep in where sufficient care has not been taken to make the pictures in the same definitely determined plane, which generally should be perpendicular to the axis of the limb, while the two views should be at right angles to one another.

Many devices have been proposed for eliminating mechanically this source of error; they are generally too complex to be practical,

[1] Read before the Atlantic County Medical Society, Atlantic City, N. J., December 10, 1897.

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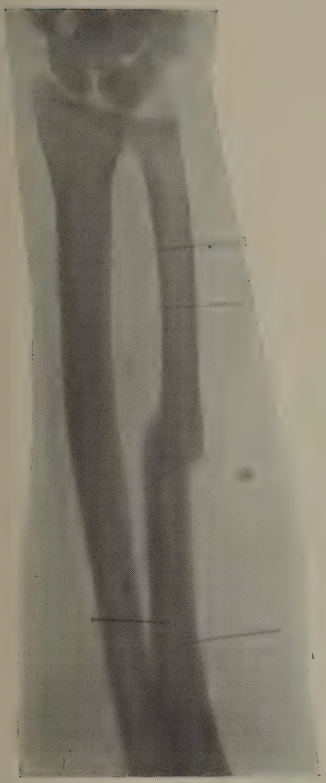

FIG. 1.—Fracture of ulna through splints, showing malposition and cause of non-union; one fragment rotated.

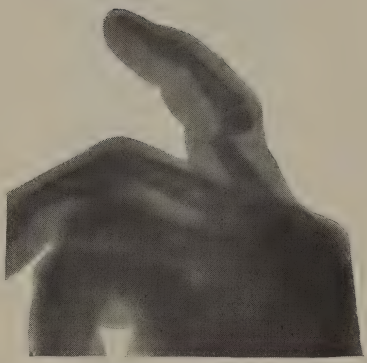

FIG. 2.—Fracture of phalanx simulating dislocation, distal fragment in flexed position.

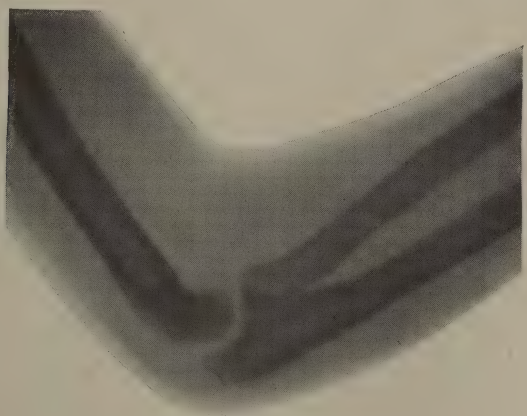

FIG. 3.—Injury to elbow-joint.

FIG. 4.—Fracture of styloid process of ulna.

FIG. 5.—Needle in thenar eminence of hand.

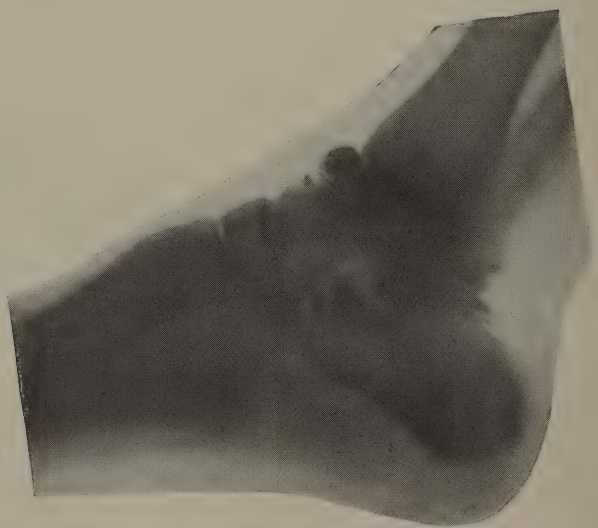

FIG. 6.—Bullet embedded 12 years over tibio-astragaloid articulation.

and a simplified mechanical device is now under construction which will combine certainty and efficiency with practicability.

Where, on account of the shape of the part, such a method of localization is impossible, various other methods, based on different views and mathematical calculations, are available.

Among the cases of foreign bodies which have come under the author's notice are jackstones, pennies, tin whistles, and buttons that have lodged in the esophagus; fragments of steel, stone, or glass, needles, nails, Murphy buttons, and bullets that have been located in all parts of the limbs, trunk, and head, including the eye and orbit.

The various calculi that form in different viscera may be classed among foreign bodies. They, however, differ in their chemical constitution and relative opacity to X-rays. Biliary calculi would seem to be the most difficult of detection, as they are surrounded by a fluid saturated with the salts that constitute them, and lie within the shadow of the liver, whose opacity is due to these salts; and although shadowy glimpses of them have perhaps been obtained in negatives, their detection is not positive or trustworthy as yet as a means of diagnosis.

Renal calculi are less difficult. They are made up of substances varying in density and relative opacity, consequently it is possible to show them in some cases, but their absence from the skiagraph cannot be considered as absolute evidence of the non-existence of one of the less opaque forms. The same may be said of vesical calculi, although it will be only exceptionally that one will escape detection.

In the diagnosis of fractures this method seems to have a utility, of which those most conversant with it have as yet only a slight idea. Fractures that were considered uncommon are becoming less so, and the diagnosis of a "bad sprain" is being superseded by an exact knowledge of the condition of the joint. It is especially in injuries involving the joints that a more precise diagnosis was needed, and is afforded by the skiagraph. The accompanying skiagraphs fully illustrate the peculiar value of this method in the diagnosis of joint injuries, and show how impracticable the diagnosis would be by any other method.

The fractures that most commonly illustrate this are fractures of the various condyles and linear fractures entering joints, fractures of the styloid process of the ulna, diastases of the upper and lower epiphyses, of the radius, ulna, humerus, tibia, and other long bones; fractures of the astragalus, the os calcis, the external and internal maleoli, and other forms of Pott's fracture.

The immediate swelling that follows so rapidly upon the injury of a joint makes the skiagraph of invaluable service in such cases, giving exact details and a certain diagnosis.

Outside of fractures involving joints, this method is especially useful in detecting linear and spiral fractures, or those where abnormal mobility and crepitus cannot be readily obtained on account of the thickness of surrounding parts, or the contiguity of an unbroken bone.

The setting of a fracture is greatly facilitated by the exact determination of the shape of the fragments, and the knowledge of whether or not a tendon is interposed. The fracture of a finger is usually easily diagnosed, but without the skiagraph the flexed position of the distal fragment in the accompanying illustration could hardly have been recognized.

The diagnosis of the exact character is not the only service the skiagraph renders, a subsequent skiagraph with the splint in position shows that the fracture has been perfectly set, and makes a permanent record which is absolute proof that any later displacement was not due to lack of proper care or skill on the part of the surgeon. In a case of refracture of the upper third of the femur, the skiagraph showed that the old callus and the thickness of the thigh had prevented an expert surgeon from exactly coaptating the fractured ends, while a subsequent skiagraph showed that the knowledge gained by the first skiagraph had made possible the perfect adjustment of the fragments.

In excisions or resections the skiagraph gives an accurate idea of the amount to be resected, and determines the exact position of the resected ends after the application of the dressings, and even through a plaster-of-Paris dressing. Their union or non-union may be determined later, without removing the dressings: while in cases of ununited fracture or vicious union the exact condition is made visible.

In orthopedic surgery the accurate delineation of the bones enables the surgeon to carefully estimate the amount of deformity, and calculate with precision the kind and extent of interference required.

The extent of osseous hypertrophies and necroses is shown with clearness by the skiagraph. All forms of dislocations, whether traumatic, congenital, or the result of pathological change, are amenable to this method of diagnosis.

That the application of the X-ray is not confined to bone lesions and foreign bodies has been shown in numerous instances, where a differentiation has been made between the different degrees of density seen in the soft tissues. An illustration of such cases is the determination of the result of an empyema and thoracotomy upon the thoracic viscera.

The same differentiation is applicable to various aneurisms.

By filling the hollow organs with opaque liquids, as emulsions of bismuth in the stomach, or iodoform emulsions in abscess cavities, their exact area can be readily determined.

Improvements which have recently been made in X-ray apparatus greatly facilitate its transportation and application in private practice. Where possible, as in injuries of the upper extremities, it is preferable and less expensive to have the patient come to the laboratory.

The use of the fluoroscope is only practical for determining gross lesions or roughly locating foreign bodies. It is, however, wanting in precision and the exact detail which the skiagraph gives, while minute foreign bodies and fractures producing but slight deformity can be readily overlooked. In all cases where a definite diagnosis is required the author insists upon the skiagraph.

The X-ray "burn" is probably caused by an induced electric current in the tissues of the patient, and can be avoided by care in keeping the tube at a sufficient distance from the body, or by placing a "grounded" sheet of aluminum between the patient and the tube.

The X-ray depends for its production upon the physical phenomenon of induction, and this law makes it certain that any conductor of electricity, as the patient's tissue, if approached sufficiently near to the X-ray tube,—*i.e.*, within the field of electrical induction,—will have a current of electricity induced in it which may be strong enough to destroy its vitality.

The fact that a "grounded" sheet of aluminum will prevent the X-ray "burn," while not interfering with the X-ray phenomena, is a substantiation of this theory, as here the aluminum is the conductor in which the induced currents are formed and thence led to the earth by the grounding wire.

Angina Pectoris: Its Relation to Dilatation of the Heart.

Musser (*American Journal of the Medical Sciences*, September, 1897) says: (1) When dilatation of the heart supervenes in a patient the subject of an attack or attacks of angina pectoris the subjective symptoms may subside; at the same time the physical type of the individual changes. (2) Angina pectoris may occur in a patient who has had dilatation of the heart when the organic condition (dilatation) is removed by treatment. (3) True angina, when it occurs in dilatation of the heart, admits of a prognosis more favorable than when it occurs with other mural conditions, as myocarditis or hypertrophy, without dilatation. (4) Grave cases of dilatation of the heart, conversely to the above, may be looked upon as amenable to successful treatment if the patient should have paroxysms of true angina pectoris. (5) In the treatment of angina pectoris digitalis is of doubtful value, not to be given unless there is an excess of dilatation. (6) The pain of angina appears to be due to increased intraventricular pressure, although other causes are no doubt operative.

MEMORANDA.

A NEW TEST FOR LACTIC ACID IN THE GASTRIC CONTENTS AND A METHOD OF ESTIMATING APPROXIMATELY THE QUANTITY PRESENT

(From the Physiological Laboratory.)

In view of the importance of the detection of lactic acid in the gastric contents, especially in the diagnosis of gastric carcinoma, and because of the uncertainty and unreliability of Uffelman's test, I venture to present the following:

The test I herein describe is simple and easily applied, the reaction characteristic, and the results reliable.

The test solutions used are as follows:

No. 1.—Saturated solution gentian violet (alcoholic), 0.1 c.c ;
Distilled water, ... 250 c.c. M.
Sig.—This solution should be freshly made at least once a month.

No. 2.—Solution ferric chloride (U. S. P., 1890), 5 c.c. ;
Distilled water, ... 20 c.c. M.

Method of Application.—Into a small porcelain capsule or test-tube put one cubic centimetre of solution No. 1, and add one drop of solution No. 2 from a pipette. The violet color of solution No. 1 changes to a bluish violet upon the addition of the ferric chloride. To this mixture add—drop by drop—the filtered gastric contents. If lactic acid or lactates be present, the color of the solution changes to a green or yellowish green. In weak solutions or in the use of small quantities of the solution to be tested the reaction is seen very distinctly at the line of contact of the drop and test solution, though the color may not be entirely changed to green when the mixture is shaken.

Alcohol, glucose, butyric acid, acetic acid, and phosphates, in quantities below 2 per cent., do not interfere with the reaction as they do in Uffelman's test. The reaction is not disturbed by the presence of acetone, albumoses, albuminoids, or peptones. Sulphuric, nitric, and hydrochloric acids do not give the reaction.

Delicacy of the Reaction.—One drop of a .02-per-cent. solution of lactic acid gives a very distinct reaction. The usual limit set down for Uffelman's test is the detection of .05 per cent. When a large quantity

of phosphates is present, there is at first a reddish violet color produced, which, in the course of a second or two, gives way to the characteristic green color. If phosphates be present to the extent of .5 per cent. it may take two or three drops of a .02-per-cent. solution of lactic acid to bring out the reaction distinctly.

The reaction which takes place in this test is the combination of the lactic acid with the ferric chloride, forming a lactate, the gentian violet acting as an indicator. The color of the solution is not entirely changed to green until all the iron is changed to the lactate. This fact makes it possible to use the test as a means of estimating approximately the quantity of lactic acid present. To determine this the test is applied as follows: Prepare a .2-per-cent. solution of lactic acid to use as a standard. This can readily be done by adding two-tenths cubic centimetre of lactic acid to seventy-five cubic centimetres of distilled water. The United States Pharmacopeia acid containing only 75 per cent. of absolute acid. Then take two small test-tubes of equal size, to each add five cubic centimetres of test solution No. 1 and five drops of solution No. 2 from a pipette. To one tube now add one-half cubic centimetre of a .2-per-cent. lactic acid solution. The mixture turns green. To the other test-tube add drop by drop the filtered gastric contents from a graduated pipette until the color in the second tube is exactly the same shade as that of the first tube. The comparison may be made more accurate by equalizing the volumes in the test-tubes, by adding to the first tube as much distilled water as was added of gastric contents to the second tube. To get the percentage of lactic acid present, divide one-tenth by the number of cubic centimetres of gastric contents used.

This is not offered as a method of accurately determining the amount of lactic acid present, but the method is accurate enough for clinical purposes. After having used the test for some time I find it possible, with a little care, to estimate the quantity present within .05 per cent., and with ordinary care and skill the amount present can be estimated within .1 per cent. very readily.

This test has been used in the practical examination of stomach contents, and compared with Uffelman's test, in one of our large hospitals, for the past three months, and has been found much more satisfactory and reliable. There is never any doubt as to the reaction, as so frequently happens in using Uffelman's test. Three or four individuals who have been using the test for the same length of time express themselves as being much better satisfied with the results obtained by its use than those obtained by the Uffelman test.

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IMMUNITY FROM LEPROSY.

The opinion on the Carrasquilla serum seems to be suspended. The Conference of Berlin rejected it; but it is just possible that such a trenchant judgment is premature, as the medicine has not yet got a fair trial. Scientifically it is wrong, as there is no culture of bacilli to start from. Carrasquilla claims that the toxin of the bacilli, already cultivated in the human tissue, is in human blood, and that this toxin extracted from the human blood and injected into the horse develops an antitoxin, which is curative for leprosy. We know that the horse is immune to leprosy. Now, if the horse's serum, after inoculation with a possible toxin, is curative for leprosy, why should not the human blood serum of a *cured* anesthetic leper be curative for leprosy? For these, the antitoxin which has overcome the toxin and the bacilli (if bacilli belong to anesthetic leprosy, as they must) must exist in considerable quantity. Why not, therefore, try my idea: Take an anesthetic leper in whom the disease has run out, blister his skin, draw the serum, and inoculate a tuberculous leper with it, and see what effect will be produced on the tubercles, if any. Or else take the serum from a blister on a tuberculous leper, and inoculate an anesthetic leper (not cured), and see if you can produce tuberculation in him. If you can, there is no such thing as immunity. In the first instance, if there is regression, it is reasonable that there is a curative antitoxin. Why not then replace Carrasquilla's serum simply by the antitoxic serum of a cured anesthetic leper. Certainly, if, as Carrasquilla claims, toxin exists in a leper's blood, an antitoxin must exist also, and, in a "cured" leper's blood, in great quantity; if it does not exist, then the leper bacillus is different from all bacilli we know; for it does not produce toxin, otherwise there would be an antitoxin formed; or it does not produce antitoxin enough to neutralize the toxin, or it does so rarely even in anesthetic cases. If these experiments should show that there is no immunity in a cured anesthetic leper, then Carrasquilla's treatment would scientifically be swamped, and Impey's theory of tissue immunity would also fall to the ground. For if, as Carrasquilla claims, toxins of the bacilli are in the human blood, and can be, at any period of the disease, inoculated in the horse, and there produce antitoxin in sufficient quantity to be curative, *then the blood serum of a leper should produce anesthetic leprosy when inoculated in a human being, even without the leper bacilli being present.* For if you can produce an antitoxin in the horse, *an animal refractory to the disease,* you should be able to produce anesthetic leprosy in a human being by inoculating the toxin *without the bacilli.* If this is so, an anesthetic leper's dis-

charges should be contagious, *even if no bacilli were in them;* just as contagious as the discharges of a tuberculous leper filled with leper bacilli.

Propositions.—(1) If inoculation of leprous toxin into an animal produces an antitoxin, inoculation of toxin should produce anesthetic leprosy in human beings, and will be a thousand times more likely (the former being refractory, the latter not).

(2) If an anesthetic leper has all his tissues, except nervous, immune inoculation of leper bacilli from a tuberculous leper should not produce tuberculation. If these tissues are not destructive of bacilli, they are not immune. If they are immune, the inoculation of toxin should produce (or has produced) an antitoxic serum a thousand times as great as Carrasquilla's serum in the horse; if we suppose for a moment that anything at all is produced in the horse by the toxin.

One can imagine if the horse could be exposed to the toxin of leprosy as many years as the *cured* anesthetic leper has been that an antitoxic serum strong enough to be curative might be obtained; that is, if the toxin in the horse's blood could work out an antitoxin *in that immune soil.*

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CLINICAL DEPARTMENT.

VESICAL CALCULUS IN A PATIENT SUFFERING FROM PHTHISIS; SUPRAPUBIC LITHOTOMY.

S. K., policeman; aged 37 years; married; white. I first saw the patient in 1880 in an attack of nephritic colic. Between this date and November, 1886, I attended him in many similar attacks, some of which were severe; they lasted about six or eight hours. He had, on an average, two in the year. In the interim he seemed quite well. Repeated examinations of his urine failed to give me any information. He had suffered for two or three years previous to my seeing him. He had consulted several eminent physicians, but none gave him any positive diagnosis. In 1884 symptoms of phthisis showed themselves, which slowly developed until in 1886 the apex of the left lung exhibited marked evidence of the disease; a small cavity was detected here. Several pulmonary hemorrhages occurred, one of which was alarming. Ulceration of the vocal cords appeared in the spring of 1886.

On November 20, 1886, the patient came to me complaining of symptoms of stone in the bladder. Within the previous three months he had had two slight attacks of nephritic colic, but not severe enough to call for medical treatment. The vesical distress, however, had commenced suddenly and was not preceded by the slightest nephritic pain. On exploration of the bladder I readily detected a calculus.

I decided upon the suprapubic operation. The nutrition of the patient was impaired, owing to the lung-disease; the reparative process would necessarily be sluggish, so that a fistula would likely have followed a perineal operation. I rejected lithotrity, as I considered that, under the circumstances, it were better to completely relieve the patient at one sitting.

December 7: Operation; Dr. Alexander McAlister assisting me. The patient was prepared in the usual manner for an antiseptic operation. The bowels had been well opened by castor oil. The bladder was emptied and then well washed out with a 4-per-cent. solution of boric acid. A colpeurynter was inserted into the rectum and distended; and then the bladder was distended with the boric solution. An incision two and a half inches long was made in the abdominal wall. The bladder was readily reached; a loop of silk thread was introduced into the wall of the viscus, which was held by the assistant while an opening nearly an inch long was made into the bladder. The index-finger was then quickly introduced into the organ, and the stone readily "balloted" up to the opening, and removed without the insertion of any instrument. The water in the bladder was now drained off by removing the rubber ligature on the penis. The opening was then closed by three catgut Lembert sutures, the silk loop was drawn out, and the bladder allowed to drop into the pelvis. The abdominal wound was closed by means of two deep figure-of-eight sutures and several superficial interrupted ones. No drainage-tube was inserted. An antiseptic dressing was applied and held tightly in place by a broad flannel bandage. A soft catheter was introduced into the bladder and tied in place. This was retained for four days without any inconvenience, the bladder by means of it being washed out every day with a boric acid solution. December 16: The dressing was removed; the wound had healed by first intention. The patient recovered well from the operation. Indeed, he seemed better of his phthisis for some months subsequently. He died of the malady two years afterwards. No post mortem, unfortunately, was allowed.

The stone was of the uric acid variety. It was compact, oblong-oval in shape, and about equal in size to a large mulberry.

It seems to me preferable, in this operation, to leave the water, which has been injected, in the bladder until after the stone has been

removed, and not to drain it off previous to making the incision into the viscus, as is recommended. In case of large calculus, the finger, of course, could not remove it from the bladder without danger of laceration at the opening; an instrument would have to be introduced. But even then the stone could more readily be extracted if it were lying free in a distended bladder, and not partially enveloped in folds of mucous membrane; while the danger of pinching the latter with the forceps would be obviated. If the calculus were encysted, the manipulation by the finger would be materially assisted by the presence of water.

CAMDEN, N. J. J. F. WALSH, M.D.

ALUMNI NOTES.

THE DECENNIAL DINNER OF THE CLASS OF 1888 OF THE MEDICAL DEPARTMENT.

THE Class of 1888 of the Medical Department will hold its first decennial dinner on Tuesday evening, June 7. It is earnestly desired that every member who can possibly do so will be present. The cost has been fixed at five dollars per cover. The commencement exercises of the University will be held on the following day, June 8. The time and place of the dinner will be announced later. For further particulars address the chairman, Dr. Randolph Faries, 2007 Walnut Street, Philadelphia.

DR. CHARLES S. POTTS, Class of '85, has been appointed consulting physician to the Atlantic County (N. J.) Insane Asylum.

EDITORIAL.

IMMEDIATE FORCIBLE REDUCTION OF ANGULAR DEFORMITY OF THE SPINE.

Immediate forcible reduction of the angular deformity of the spine, the result of caries of the vertebræ, is being employed extensively in Europe, but so far seems to have received but scant attention in this country. The credit of having devised this method is usually given to Dr. Calot, of Berck-sur-Mer, Pas de Calais, France, although he seems to have been preceded in this line of work by Chipault. According to a recent writer, however, the practice is a very old one. The English translation of Scultetus (1674) is said to describe and picture the method, and Abernethy, it is claimed, advocated forcible straightening of the projecting spine in suitable cases. To Calot certainly belongs the credit of systematizing the method and of forcibly bringing it before the profession. This is, however, the least important aspect of the subject.

The operation has been introduced or, perhaps, we might say, reintroduced so recently that its real value is still to be determined.

The technique of the method is somewhat as follows: The patient having been prepared for two or three days by a diet that is nutritious, without leaving much residue, should be freely purged and the bladder should be empty, and after being lightly anesthetized is placed prone on a table and strong traction and counter-traction made from the head and lower extremities, either by assistants or by means of an apparatus such as is employed by Rédard. By means of the latter the degree of traction can be regulated to a very great nicety. Traction on the head is best obtained by means of two strips of strong linen one yard long. The middle of one strip is placed under the chin, and the middle of the other under the occiput. The two meet above each ear, where they are to be fastened together with strong safety-pins. The amount of extension required in different cases varies from a very slight degree to as much as fifty to eighty kilogrammes. The difference observed in successive cases probably depends upon the amount of new bone which has been thrown out in the form of bands, in the effort of nature to supply what has been destroyed by disease. While this continuous extension is maintained the operator forcibly presses downward upon

the apex of the projecting spine, while an assistant supports the spine below with his hand applied to the abdomen. The amount of force to be employed here also varies. Rédard, who is a warm partisan of this operation, and whose experience embraces some forty cases, is absolutely opposed to forcible, rough, or violent manipulations. It is probably safer and more rational to attempt to effect reduction at a number of sittings, if the deformity resists a reasonable force.

Having straightened the spine, it only remains to include the whole trunk, the neck, base of the head, chin, and occiput in a plaster-of-Paris dressing which is to be applied while the extension and pressure are continued. But a thin layer of cotton should be placed next to the skin, or some prefer to omit the cotton entirely, as the retention of the spine is more accurate and secure. The head should be shaved in advance if the plaster cuirass is to be applied. Some surgeons prefer to operate without an anesthetic, and it certainly may be dispensed with where great force will not be employed. Tubby prefers a modified double Thomas hip-splint with a head-rest to the plaster-of-Paris dressing, as it is more comfortable, is less apt to cause pressure-sores, and the patient is much more easily kept clean and can be more readily treated in the event of respiratory difficulties or other complications. Jones and Tubby have so modified this splint that when the patient lies upon it the bodies of the vertebræ cannot possibly fall upon one another. They believe that hyperextension of the spine is a much more important factor in the prevention of Pott's curvature than any traction that could be tolerated, a view also held by Chipault.

The advantage to be derived from the correction of the deformity of the spine, in addition to the esthetic effect, which is not an inconsiderable matter, is the avoidance of dislodgement and cramping of the viscera, and, further, the conditions, if uncorrected, are such that there is a constant tendency towards an increase of the curvature.

Jones and Tubby consider the following classes of curvature best suited for this method: (*a*) Those occurring in the young; (*b*) those in which disease is active; (*c*) those in which the angle of deformity is changing; and (*d*) as an alternative to laminectomy in cases in which paralysis is present, as laminectomy has frequently failed to relieve the pressure. The reasons for selecting such cases are that in young children slight traction usually suffices and less force is required when the disease is active than when the consolidating processes are nearly ended. It is also reasonable to suppose that an angle that is increasing constantly could be reduced with moderate facility.

Cervical curves should rarely, if ever, be subjected to this treatment.

Rédard admits only the following conditions as contraindications

to the operation: Irreducibility with the employment of moderate force or traction, a bad general state of health, generalized tuberculosis, visceral disease, and large cold abscesses.

Calot would eliminate the following cases: (1) Children in an advanced state of cachexia, on account of the difficulty with which they tolerated the plaster jacket, which still further impeded the already feeble action of the respiratory muscles. (2) Children who suffered from cough for the same reason. (3) Children with abscesses, because of the danger of rupturing the abscess during the manipulation. In such cases the abscess should first be treated by puncture and injection, and usually in about two months it would be proper to proceed to reduce the deformity. (4) Children with fistulæ. (5) Persons over twenty or twenty-five years of age with old curvatures, that is of seven or eight years' standing, that resist a traction of from fifty to eighty kilogrammes.

Theoretical objections to this operation at once occur to one. The first is that the method would be apt to result in some violence to the spinal cord. Experience shows, however, that the operation is almost entirely free from this danger.

Of some 600 cases operated upon by Calot, or of which he has notes, but three developed paralysis, which lasted for some weeks after the correction. On the other hand, he has records of eight cases in which the paralysis was relieved by the operation. Lorenz reports a case in which permanent paralysis of a severe type immediately followed correction of the spinal curve, which was done to arrest a threatened paraplegia. The danger of causing acute dissemination of the tubercular infection does not seem to have been great.

The final results of the operation are still *sub judice*. Time alone can give to this operation its true value. Jones and Tubby say, "If we cannot with precision foretell ultimate results, we know that the immediate ones do not end in tragedy. Above all, we may rest assured we have in our power a method in early cases to prevent and to obliterate deformity, for while the spine is kept in the position of lordosis the vertebral bodies will have every mechanical inducement to resist deformity."

MEDICAL PROGRESS.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM PEPPER, M.D., LL.D, AND JAMES TYSON, M.D.,

ASSISTED BY

M. HOWARD FUSSELL, M.D., AND A. O. J. KELLY, M.D.

Abscess of the Liver of Unusual Origin.

In a case reported by Alexander Lambert (*New York Medical Journal*, February 5, 1898) the diagnosis was chronic nephritis and cirrhosis of the liver, with unknown cause of the fever and death. At the autopsy the inferior surface of the right lobe of the liver was densely adherent to the subjacent tissues, and on separating these adhesions a large amount of a greenish-yellow pus gushed from the lower surface of the liver. On removal, the right lobe of the liver was found to be completely riddled with communicating cavities of a large size. These pus accumulations were limited by dense walls of fibrous connective tissue, the inner surfaces of which were covered by masses of granulations and pus-clots. These granulations did not appear to be tuberculous in character. The lower wall of the abscess was formed by the dense peritoneal adhesions already mentioned, which glued the upper border of the stomach to the inferior surface of the liver. On close examination of the wall of the abscess cavity a pin incased in calcareous matter was dislodged from the wall of the main cavity. The pin was of the ordinary variety and measured twenty-seven millimetres in length. Both the head and the stem of the pin were incased in calcareous matter, so that it measured nearly three millimetres in diameter. The liver, as a whole, was not enlarged. The capsule was thickened and scarred. The left lobe was not involved in the suppurative process. It was of a light mahogany color, and showed congestion with considerable increase of the circumvascular connective tissue. The weight of the liver after the pus-cavities had been flushed out was two pounds and ten ounces. The pus was examined microscopically and showed bacilli and micrococci, but no cultures were made.

A Case of Acromegaly; Autopsy; Skeleton.

O. T. Osborne (*Yale Medical Journal*, December, 1897) says: My inference as to the explanation of the conditions present in acromegaly is as follows: (1) I believe the primary cause of acromegaly to be due entirely and alone to a disordered secretion of the pituitary body. (2) Next we find the thyroid attempting to furnish some new secretion, and at the same time a large amount of its own, to assist the pituitary body. Its hypertrophy, however, soon be-

comes pathological by connective-tissue formation, and the gland does not furnish proper thyroid secretion. We now have symptoms of partial myxedema with enormous hypertrophy of the soft parts, especially over certain portions of the extremities, and from an enlarged thyroid we may have pressure symptoms causing exophthalmus. (3) All the other symptoms of acromegaly are due to the pressure of the enlarged pituitary body, or to connective tissue growths in the organs of the body, or to the growth of the bones.

A Case of Pemphigus Neonatorum associated with a General Infection by the Staphylococcus Pyogenes.

L. Emmet Holt (*New York Medical Journal*, February 5, 1898) says that on December 19, 1896, there was admitted to the Babies Hospital an infant 9 days old with many bullæ over its shoulders and the lower part of its body. No history of syphilis was obtained in the parents or in two other children. The body was exceedingly dirty, and looked as if there had been no bath given for a week. The bullæ were chiefly about the shoulders, buttocks, and thighs. They were from a quarter of an inch to an inch in diameter; none were present over the chest or back, none upon the feet or hands, and only two upon the face. Some of them had evidently just appeared. These were flaccid, and had slightly turbid contents; others had ruptured, showing a deep red base formed by the cutis vera, and still others showed superficial ulceration and were discharging pus. There was a moderately severe purulent ophthalmia, with an abundant discharge of pus. The navel was normal; examination of chest and abdomen negative; pulse good; temperature 98.2° F. An examination of the pus from the eye showed an abundance of pus organisms, but no gonococci. The contents of one of the bullæ on the neck and another from the thigh both showed pure cultures of the staphylococcus pyogenes aureus. Upon the third day the child grew worse rapidly, new bullæ appeared with great rapidity. The child lay in a semistupid condition, refusing food, temperature 100.6° to 101.8° F. Death occurred from exhaustion sixty hours after admission. Autopsy showed the body well nourished and an extensive cutaneous eruption. Brain moderately congested. Larynx congested and covered with a thin, grayish film, which peeled off easily, showing the reddened mucous membrane beneath. No membrane in the naso-pharynx. Lungs: Large areas of atelectasis in both lower lobes, with emphysema anteriorly and many punctate hemorrhages on the surface of both lower lobes, with much general congestion. Thymus: Many punctate hemorrhages. Liver and spleen swollen and congested, otherwise normal. Kidneys intensely congested, Malpighian pyramids appearing almost hemorrhagic. Suprarenals much congested and showed small hemorrhages. Mucous membrane of esophagus and stomach intensely congested. Peyer's patches and the solitary follicles of the colon swollen and intensely congested, but mucous membrane generally normal. Cultures from the lungs showed a *staphylococcus pyogenes aureus* and bacterium lactis aërogenes. The spleen and left kidney showed *streptococcus longus;* the liver, *streptococcus longus* and *staphylococcus pyogenes aureus.* The bullæ on the skin showed pure cultures of *staphylococcus pyogenes aureus.* Regarding the use of few medical terms does more confusion exist than with respect to pemphigus. Ordinarily it is used to designate almost any cutaneous lesion characterized by bullous eruptions. The acute form of the disease seen in very young infants certainly has little or nothing in common with the chronic

form seen in older children and adults. Hereditary syphilis is responsible for a certain proportion of cases of pemphigus seen in newly born children, and many writers have been disposed to regard all these cases as syphilitic. The facts, however, do not warrant such a conclusion.

In the case here reported there was no evidence whatever of syphilis, either clinical or pathological; but the symptoms during life, post-mortem findings, and the cultures all indicate a process of an acute general infection, of which the bullous eruption was only one of the manifestations. This bears out the findings of Strelitz and others, and shows that there are certainly cases of so-called pemphigus which are simply varieties of sepsis in the newly born. It is my opinion that many cases formerly regarded as syphilitic will be found to belong to this category.

On Diagnosis.

An editorial (*Philadelphia Medical Journal,* January 8, 1898) in this journal says: It is not the end of diagnosis to determine the name of the disease from which a patient is suffering. It is a great satisfaction to know John Smith has typhoid fever; it is much more satisfactory to know that John has typhoid fever in the second week; that he has probably no serious local lesions; that his general condition is good, and his heart sound. This expresses in a way the difference between a good diagnostician and a poor one. Some men are pleased to be able to label every case more or less accurately; this is but the first step in diagnosis. It is the clinician's duty to recognize every abnormal condition presented by a patient and the probably pathologic causes. Refined diagnosis goes still further: it makes clear the interdependence of various morbid states presented by one patient. An individual may have two distinct diseases at the same time; much more frequently the several conditions arise in sequence, one causing another, or all may be due to one underlying morbid process. We have known three clinicians of world-wide reputation make the diagnosis respectively valvular heart-disease, abdominal aneurism, organic disease of the spinal cord in the same patient; not one recognized the three conditions present or the fact that general arterial disease was the underlying evil. Accurate treatment follows naturally upon accurate and ultimate diagnosis. In other cases, if inaccurate, the treatment is accidental.

Some of the Dangers Surrounding the Dairy.

Brush (*New York Medical News,* February 12, 1898) says in many of the dairies supplying milk for food nearly everything is totally wrong or not quite right enough to produce a wholesome product. It is well known that the dairy cow is subject to numerous grave diseases, and it is also an established fact that any disease in the cow affects her milk perniciously. At the present time health authorities appear to recognize nothing but tuberculosis as the sum total of all the disease and danger contained in the improperly managed dairy. The sources of possible contamination which surround the milk after it is drawn from the cow are many and serious on the majority of dairy farms. I believe that when we are able to exclude the diseases which arise from milk contamination in the dairy, outside the cow, we will be better able to trace some of the epidemics which find origin in the animal herself. Many of the diseases of

infancy may be rendered much less frequent or even altogether eradicated by proper attention to the hygiene of the dairy. There are many other animals about the dairy besides the cow which menace the dairy product, often as seriously as a diseased cow herself. Horses, dogs, cats, rats, mice, and fowls undoubtedly are often the direct means of infecting milk, and thus passing contagion to the human race. The dairyman, as a rule, has a family of children who are often attacked with the grave diseases of childhood. The milking vessels are frequently washed in the house, and not unusually there is a close connection between the house and the dairy, and sometimes the living-house itself is used as a dairy-house. Those who milk the cows are not always free from disease; often we see the milker with hands that are cracked or sore. I have myself seen milkers spit upon their hands to wet the teats before they began milking, and then, when there was a certain quantity of milk in the pail, dip their dirty hands into it and keep the teats dripping wet during the whole process of milking. In these days of bottled milk the danger of spreading contagion is vastly increased. Bottles which go into rooms where children are suffering from any of the contagious diseases must be a source of danger if they are not subsequently sterilized. We ought to insist that all milk containers be sterilized with steam under pressure after each usage. When the dangerous elements are recognized and eliminated from the dairy, then it only requires that the cows be healthy, properly fed and cared for, in order that we may have milk fit to drink and to feed to the baby, without the intervention of the chemist or any of the prevailing laboratory methods, which at the best are only questionable makeshifts.

The Heart Wall.

The *Philadelphia Medical Journal* (vol. i, No. 7) has the following abstract:

F. H. Pratt, as the result of certain experiments, has lately shown that the vessels of Thebesius opening from the ventricles and auricles into a system of fine branches, and thus communicating with the cardiac capillaries and coronary veins, through which a backward flow of blood from the auricle may be conveyed into the tissue of the heart, are capable of sustaining, in certain animals, the rhythmic contraction of the organ. The author believes that these channels may at times by themselves be capable of feeding the myocardium sufficiently to keep it alive and active even when the coronary arteries are in a state of advanced disease. In cases of arteriosclerosis, in which the walls of the coronary arteries have become thickened, their elasticity reduced, and their lumen narrowed or even obliterated, some other source of blood-supply must have been at hand. This supplementary aid Pratt conceives as originating (1) through abnormal anastomoses, which by their presence take the coronary system out of the group of end arteries in Cohnheim's sense; (2) in enlargement of the communicating branches, with the establishment of a collateral supply following the gradual closure of the main vessels; (3) and perhaps the most important, from vicarious flow through the vessels of Thebesius and coronary veins. "Through these ever-present channels blood can be drawn to the anemic area for the occasional saving hearts in which the blocking has been sufficiently slow."

SURGERY.

UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.,

ASSISTED BY

ELLWOOD R. KIRBY, M.D.

Testicular Complications of Elephantiasis.

Le Dentu (*Revue de Chirurgie*, January, 1898) describes a form of chronic enlargement of the testes frequently met with in the inhabitants of warm countries, and associated, in many instances, with elephantiasis of the scrotum and lower extremities. This form of testicular enlargement, which is associated with swelling and induration of the epididymis and spermatic cord, even when existing alone, is held to be invariably of the nature of elephantiasis, and not due to any malarial influence, as supposed by many authorities.

The author has found, after castration and during an operation for hydrocele, that this condition is the result of a distention of the lymph-vessels of the tunica albuginea, epididymis, and cord, and of an excessive proliferation of the connective tissue. Such changes are met with in cases of well-marked elephantiasis of the integument, and of inguino-scrotal lymphangioma.

The author thinks the filarin undoubtedly plays a considerable part in the genesis of such morbid conditions.

What Operation can do for Cancer of the Tongue.

Butlin (*British Medical Journal*, February 26, 1898) reports a series of 102 cases of cancer of the tongue. He says it has not been his custom to remove the entire tongue as a routine operation in every case of cancer. In only one of his successful cases was the entire tongue removed. In the complete group of 102 cases the entire tongue was only removed sixteen times, and an analysis of these sixteen cases shows that four of the patients died of the operation, and two of these shortly after their return home, and that five suffered from recurrence *in situ*, and that only one case can have claimed to be cured.

The question of the removal of the entire tongue is one of considerable importance. The operation, to say the least, is dangerous, the patient is cruelly maimed, his speech is very defective; he has difficulty in taking solid food, he suffers from the collection of mucus and saliva in the mouth, and if his occupation depends on speech, even in a moderate degree, he is forced to abandon it. There is ample proof that a removal of a portion of the tongue is sufficient to cure a considerable percentage of patients, and to save a much larger percentage from recurrence of the disease within the mouth.

In the removal of the tongue the author always aims at removing the cancer with three-quarters of an inch of apparently healthy tissue around it in every direction.

In many instances the lymphatic glands were found enlarged, within a few weeks of the outbreak of the primary disease.

About 90 per cent. of the cases can be successfully treated by operation with but little fear of recurrence *in situ*, but of these ninety persons thirty will

die of affections of the glands of the neck. In order to avoid this secondary recurrence, the author advises the removal of the lymphatic glands of the neck at the time of operation, whether they be obviously enlarged or not.

A careful study of the cases shows that the lymphatics of the tongue are so disposed that they may pass through one or more of four groups of glands: (1) The submental group; (2) the submaxillary group; (3) the parotid group; (4) the carotid group.

With these groups of glands in mind, the author, as a routine treatment, removes all the glands in the anterior triangle of the neck, including the submaxillary salivary gland. The dissection is commenced below and carried upward, and the large vessels are exposed for a considerable distance. This dissection, the author states, requires from an hour to an hour and a quarter. As but few of these complete operations have been performed, the author as yet is unable to draw conclusions as to its ultimate value.

OBSTETRICS.

UNDER THE CHARGE OF

BARTON COOKE HIRST, M.D.,

ASSISTED BY

W. A. NEWMAN DORLAND, M.D.

Thrombus of the Vulva at the Sixth Month of Pregnancy; Incision; Cure.

Vinay (*Lyon Médical*, September 26, 1897) reports an interesting case of this very rare condition. The patient was 23 years old, and was pregnant for the sixth time. She had been subject to convulsive seizures since 18 years of age. On the sixth month of the pregnancy, on the morning of her admission to the hospital, the patient while rising from a chair was taken suddenly with vertigo and loss of consciousness and fell to the floor, striking against the chair. On regaining consciousness she suffered from severe pain in the left labium majus. Examination revealed a bluish tumor on the left labium the size of an adult fist; it involved both the greater and lesser lips and invaded the surrounding parts. It gave to the touch the sensation of a soft, almost fluctuating mass. The color was blackish, or violet, and this latter was especially marked where the integument was the thinnest and most vascular. There was no fever. The tumor was bathed and a hot sublimate compress applied. Four days later it was opened and drained. The patient advanced subsequently to term, and after a simple labor was delivered of a healthy child.

Fetal Sounds (not Cardiac) Audible before Birth.

Meyer (*Centralblatt für Gynäkologie*, No. 28, 1897) believes that an obstetrician with acute hearing can distinguish not only the heart-sounds but also other noises made undoubtedly by the fetus, and not caused by the uterus or placenta. He reports a case in which in the first pregnancy he diagnosed

frequent singultus, and the child showed the same symptom after its birth. The mother of the child became pregnant again in August, 1896. Labor pains set in at 1 A.M. May 22, 1897; the child moved freely. The membranes ruptured at 3.30 A.M., about sixteen ounces of liquor amnii escaping. The fetal heart-sounds were quite audible towards the left groin. In the intervals between the pains Meyer distinguished on applying the stethoscope over the symphysis a very rapid knocking sound. Over 250 beats were audible to the minute. The cardiac pulsations were about 128. These anomalous sounds ceased very suddenly as they had begun. At 7.10 A.M. the child was delivered; nearly two pints of clean liquor amnii escaped. The child was a male, weighing eight pounds, and measuring nearly twenty inches in length. As it cried very rapid tremors of the lower jaw were observed. [This chattering of the gums is not unknown in new-born children.] Their number within a given time and their great clearness and sharpness so that each beat could be heard, notwithstanding the rapidity of the movements of the jaw, proved that they were identical with the sounds heard *in utero*.

Postpartum Eclampsia.

Maygrier (*Progrès Médicale*, July 17, 1897) writes that a primipara, aged 26 years, was admitted into the Lariboisére Hospital in labor at term. For a month she had been subject to headache and edema of the legs. Within eight hours after delivery she had a fit, followed by three more within three hours. She was conscious between the attacks. After an interval of four hours a fifth fit came on, followed by coma, which terminated within an hour in death. As a rule, postpartum eclampsia, Maygrier observes, is mild. This case does not support the current theory that in the eclampsia of pregnancy it is advisable to induce premature labor. Maygrier is opposed to this practice; but when labor sets in he terminates it as quickly as possible in the interests of the mother and child.

Gastro-Intestinal Hemorrhage in the New-Born.

According to an editorial in *Pediatrics*, August 1, 1897, gastro-intestinal hemorrhages in the new-born—that is to say, within fifteen to twenty days after birth—are of rare occurrence. In the case of melena proper the symptoms vary with the quantities of blood lost. If the hemorrhage is scanty, general symptoms are lacking; on the other hand, the phenomena usual with large losses of blood are present, except that fall of temperature does not always exist. Melena neonatorum occurs in the majority of cases within from three to ten days of birth, more often within three. The cause of many of these hemorrhages is obscure; occasionally ulcers of the stomach or duodenum have been found, but in most instances the hemorrhage has been capillary, and nothing but a congested state of the vessels has been discovered. Grandier and Ritter have given as a probable cause a condition allied to hemophilia. The late J. Lewis Smith quotes Vogel, who believed that the closing of the umbilical vein was the cause of congestion. The prognosis naturally must depend on the frequency and abundance of the bleeding, and the causes when these can be diagnosed. Fortunately, cases of melena proper are few and far between. According to Bohl and Hecker eight cases occur in 4000. Speigelberg says two in 5000 and Genrich one in 2800. In treating infants suffering from melena proper no nourishment must be given that has a tendency to

congest; suckling at the breast should be prohibited, the feeding should be effected with a spoon, containing either mother's or goat's milk diluted with iced barley-water. The skin should be rubbed to arouse circulation, and above all the respiratory movements of the infant should be left perfectly free. The application of heat is beneficial. The French pin their faith to the use of the couveuse. When this is not obtainable, Loranchet advocates enveloping the infant in warm cotton-wool. Hermary strongly recommends friction with alcohol. Opinions differ as to the effectiveness of medicine administered internally. Hermary advises perchloride of iron. Eustace Smith suggests gallic acid, extract of koumeria, or oil of turpentine in mucilage. Oni, on the contrary, deprecates the internal use of medicine on the ground that the stomach requires rest, and he prefers subcutaneous injections of ergotin. When the anemia is severe, Lutin, Hutinel, and Weiss advise injections of a weak solution of sodium chloride; inhalations of oxygen, when possible, artificial respiration, and injections of ether are often of benefit. After the bleeding has been finally arrested the infant will need careful overlooking for some time, and if syphilis has been diagnosed as the cause, mercurial treatment should be commenced without further delay.

Complete Hysterectomy for Rupture of the Uterus and Vagina during Confinement.

Branham (*Maryland Medical Journal*, August 21, 1897) records the following case: A colored woman, 26 years of age, who had given birth to five children and five miscarriages, fell into labor again October 3, 1896. The pains being feeble, the Tournier forceps were applied on the morning of October 4, 1.30 o'clock, and a child of moderate size delivered. After delivery the patient became very weak, her pulse rapid and small, and marked symptoms of hemorrhage appeared. Examination at 10 A.M. revealed a distended abdomen with great tenderness. Vaginal examination revealed an extensive tear involving the vagina at the junction of the uterus on the left side; also a small wound on the right side. On account of the enormous quantity of blood that was evidently in the peritoneal cavity abdominal section was performed. As the peritoneum was incised an immense quantity of blood gushed out. Upon lifting the uterus and examining Douglas's cul-de-sac, a very extensive tear beginning in the left posterior segment of the uterus, extending between the uterus and the vagina, and across the anterior wall of the rectum into the left broad ligament, about six inches in length, was found. On the right side a small tear across the vault of the vagina was present. A complete hysterectomy was done with perfect results, the patient making an uninterrupted recovery.

GYNECOLOGY.

UNDER THE CHARGE OF

CHARLES BINGHAM PENROSE, M.D.,

ASSISTED BY

H. D. BEYEA, M.D., AND H. L. WILLIAMS, M.D.

Pruritus Vulvæ.

Herman (*British Medical Journal*, November 20, 1897) makes the following division of cases of pruritus vulvæ:

(1) Adventitious, due to dirt, pediculi, worms, or pessaries.

(2) Skin diseases,—eczema, herpes, or furuncle, follicular, urticarial, and diabetic dermatitis.

(3) Irritating discharges, such as gonorrhea, cancer, senile endometritis; also cases in which no visible discharge is apparent.

(4) Venous congestion, due to heart, liver, and lung diseases.

(5) Nervous affections.

For each division the following treatment is recommended:

(1) White precipitate ointment for pediculi. For the other causes, absolute cleanliness and changing of the material of pessaries.

(2) For eczema (usually affecting fat, elderly women and those pregnant), when due to pruritic organisms, warm hip-baths, with liquor carboni detergens added, and the parts powdered with boric acid. When due to diabetes, general treatment. Herpes zoster did not respond to treatment. For follicular pruritus it is recommended to squeeze out the contents of follicles and apply corrosive sublimate, 1 to 2000.

(3) Antiseptic and sedative douches, and sedative dusting powders on the vulva, as a saturated solution of borax and solution of boric acid. In case of failure with these, try a 1 to 7 solution of carbolic acid.

(4) The same local treatment as for class with general constitutional treatment.

(5) Pruritus, when occurring in aged women, is frequently a symptom of degenerate changes, and treatment usually fails.

The Indications for Abdominal or Vaginal Laparotomy.

Veit (*Centralblatt für Gynäkologie*, No. 49, 1897), in a paper read before a recent meeting of the Netherland Gynecological Society, lays down the following dicta as a guide in determining the selection of the route for abdominal operation:

Fibroid tumors are preferably removed through the vagina, as the tumor can be readily pressed into the pelvis. Large tumors must always be removed through an abdominal incision.

Ovarian tumors should always be removed by the abdominal operation, with the exception of small tumors that are movable. Tubal disease almost invariably requires opening of the abdomen. Very rarely a one-sided affection may be suitable for a vaginal operation.

When the vaginal route is selected for operation for tubal gestation the

very greatest care must be observed, and in spite of all precautions an additional opening of the abdomen will frequently be required.

Adhesions absolutely contraindicate operation *per vaginam.*

The vaginal route should be preferred for exploratory incision in doubtful cases.

Choreo-Epithelioma, the so-called Deciduoma Malignum.

Prochownick (*Münchener medicinische Wochenschrift,* No. 2, 1898) presented the following important clinical observations in cases of deciduoma malignum at a recent meeting of the Hamburg Medical Society.

The patient's life can only be saved by a very early diagnosis, which is usually possible at this stage only by microscopical examination. A permanent cure is not to be looked for if the operation is delayed until pronounced clinical symptoms become manifest. So rapid is the growth of scrotal tumors that the early microscopic diagnosis is even more important than in the case of carcinoma of the uterus. Since such a large proportion of these growths are subsequent to hydatid mole, every mole pregnancy should be most carefully examined and kept under constant observation, even if the early examination gives no evidence of malignant degeneration.

Cases of labor, miscarriage, or abortion that are followed by irregular and intermittent bleeding, in spite of thorough curetting and appropriate treatment should be considered suspicious and most carefully investigated.

Cystic Tumor of the Spleen.

Baginsky (*Berliner klinische Wochenschrift,* Vol. xxxv, No. 2) reports the removal of a large hemorrhagic cyst of the spleen, which developed in a girl 12 years old, after a fall on the abdomen. The tumor formed a large mass occupying the left hypochondrium, and was fluctuating below, but solid above.

The blood, on examination, was found to be normal. Exploratory puncture revealed the presence of a brownish fluid, which was examined for echinococcus hooklets, with negative results.

The tumor increased gradually and began to affect the general health, when operation was performed. Upon opening the abdomen a large hemorrhagic cyst, which contained a quart of bloody fluid, was found in the spleen.

The cyst was removed, and upon examination the wall was found to be composed of dense connective tissue and normal spleen substance.

The child recovered entirely from the operation, and was discharged in good health.

Bakinsky also refers to another similar case which occurred in a girl 7 years old, and proved fatal at the post-mortem examination. Three cysts were found in the ductus choledochus which had resulted from the retention of bile due to inflammatory obstruction of the duct.

The Effect of Gynecological Operations upon Female Mental Disturbance.

Mundé (*American Gynecological Journal,* January, 1898), in discussing the value derived from gynecological operations upon women mentally unbalanced, advances the following conservative views:

"I would certainly admit the closure of a deeply lacerated cervix or perineum, if that were the *only* lesion I could detect in a woman suffering from some mental disturbance, *especially if she were aware of the lesion,* and after all other means had been tried ineffectually to restore her mental condition. I should then expect the operation to act as a moral or mental remedy, almost or entirely irrespective of its local necessity. But I should be careful not to promise a success to the family; the patient, of course, should be impressed with the certainty of a cure. But I would not advise or practise the removal of the ovaries or uterus, any more than the repair of a lacerated cervix or perineum, or the removal of the clitoris or nymphæ for an undoubted insanity of more or less permanent type. Whatever improvement would ensue would probably be but temporary. The results of oöphorectomy in insane women has not been favorable. The insanity had nothing to do with the ovaries or their function. What benefit could then be expected from their removal? If such a connection can be distinctly determined, then the case is different, and the appendages should be removed."

PATHOLOGY.

UNDER THE CHARGE OF

JOHN GUITÉRAS, M.D.,

ASSISTED BY

DAVID RIESMAN, M.D.

The Transmissibility of Human Measles to Animals.

Josias (*La Semaine Médicale,* March 9, 1898) touched the nasal fossæ and the throats of monkeys with mucus obtained from children with measles in the first or second day of the eruption. Three out of eight animals presented local and general symptoms resembling those seen in human measles.

Changes in the Nerve-Cells in Fever.

At a recent meeting of the Berliner Verein für innere Medicin (*Deutsche medicinische Wochenschrift,* February 17, 1898) Goldscheider and Brasch showed Nissl preparations from the cord of a child that had succumbed to scarlet fever on the fourth day. The terminal temperature had been from 40.5° to 40.9° C. The ganglion-cells were smaller than normal and pale, and the protoplasmic indistinct; the nucleolus in some cells was angular, and the protoplasmic processes were swollen. As these changes corresponded exactly with those found by Goldscheider and Flatau in the cord of a case of tetanus with fever, dying on the sixth day, and likewise with those obtained in rabbits exposed to high temperature. The authors were inclined to attribute them to the influence of the temperature, and not to the action of the toxin of scarlet fever.

As regards the tetanus case, the lesions found were different from those seen in animals poisoned with tetanus-toxin, in the latter case the nucleolus

and Nissl's bodies swell, and later break down, while in fever the nucleolus becomes smaller and angular and Nissl's bodies dissolve. Brasch found similar febrile changes in the ganglion-cells in a case of meningitis with high terminal temperature.

Endocarditis Tuberculosa.

Benda (Verein für innere Medicin, meeting of January 31, 1898, *Deutsche medicinische Wochenschrift*, February 17, 1898) describes a case of tuberculous endocarditis of more than ordinary interest. The specimen had been obtained from a boy who had suffered from hip-disease and had died of miliary tuberculosis. On the mitral valve, at the point of attachment of one of the chordæ tendineæ, a little nodule was found which microscopically consisted of a vascularized granulation tissue with epithelial cells; giant-cells were not seen, but tubercle bacilli were present in enormous numbers. The author considered this nodule to have been the source of the miliary tuberculosis, although there might have been an additional elsewhere that was overlooked.

The Formation of Mucus.

A. Schmidt (*Sammlung klinischen Vorträge*, No. 202, February, 1898) has devoted a good deal of attention to the study of mucous secretion, and in these lectures collates a number of facts that may profitably be reproduced in this department. There are two principal forms of mucinogenous substances: the nucleins and the mucins, the former containing phosphorus, the latter not. All mucins are not alike; thus, that of the stomach under normal conditions does not give the characteristic mucin reaction, while in certain pathologic states it does. Regarding the function of mucin, the author thinks that they are very important. Mucin is not germicidal; it is, however, a poor soil for the growth of bacteria. As to the question whether the cells forming mucin always perish after secreting the substance, he is inclined to the belief that they do not, although their longevity is limited.

The secretion of mucus increases on irritation, but if the latter is too severe, the cells die and secretion is suspended. Hence the secretion, in catarrhal inflammations, of tough mucus is a good sign, indicating that the mucous membrane is not seriously injured. In some inflammatory conditions of mucous membranes, mucus is absent from the discharges; this may be due to digestion of the mucus, or to its decomposition by bacteria. The hay bacillus, the bacillus coli, and the typhoid bacillus, as well as others, have the power of liquefying mucus. The presence of pus, and a discharge associated with the persistent absence of mucus indicates atrophic inflammation of the mucous membrane in question.

As the best clinical test for mucus the author recommends macroscopic staining. Mucin reacts with basic, nuclein with acid dyes. Thus, from a mixture of acid fuchsin and methyl-green, pneumonic sputum, which consists largely of nucleins, selects the fuchsin, mucus, the methyl-green. The method is as follows:

A small, pea-sized, transparent, glassy flocculus of sputum is placed in a test-tube and agitated with a 5-per-cent. solution of bichloride of mercury in alcohol. Albuminous sputa disintegrate rapidly, mucinous slowly. After sedimentation the alcohol is poured off and the tube filled with distilled water.

Three drops of a stock-solution of the stain (one gramme Biondi's salt to thirty cubic centimetres of distilled water) are then added. The tube is turned slowly for from one to three minutes, and, after decantation, the sediment washed once or twice with distilled water. Brick-red color of the flocculus indicates pneumonia. The color must be brick-red, not violet-red.

Microscopic examination of the excreta for mucus is of value; the acetic acid test is unreliable.

Tuberculosis and Pseudo-Tuberculosis.

Bataillon and Terre (*La Semaine Médicale*, March 2, 1898) were able, by passing tubercle bacilli (*a*) from man through the frog or the carp to produce a form (*b*) which can adapt itself to low temperature. A third form was obtained from human tuberculosis by a passage of three days through the frog, this differing from type *b* in different aspect of culture, in growing readily at elevated temperatures, and in rendering bouillon turbid. Inoculated into guinea-pigs the cultures produced tuberculosis, but without Koch's bacilli being present; instead, a form resembling pseudo-tuberculosis was found. Rabbits likewise succumbed, but without tuberculization of the viscera; bacilli, however, existed abundantly in the blood and organs. In another series of experiments old cultures of type *b* were injected into rabbits. One died after three and a half months, with nodules in the liver and with myriads of bacilli both in the nodules and in the blood. Blood from this rabbit injected into a guinea-pig caused the latter's death in less than five days; the same bacillus was found in liver, blood, etc.

These two forms of pseudo-tuberculosis have their origin in two distinct stages of the cycle of the organism, and lead to the conviction that probably many cases of pseudo-tuberculosis are real tuberculosis, having as their cause the numerous forms of Koch's bacillus.

The Fate of Tetanus Toxin introduced into the Intestine of the Guinea-Pig.

F. Ransom (*Deutsche medicinische Wochenschrift*, February 24, 1898) shows that the well-known fact of the innocuousness of various bacterial poisons introduced into the gastro-intestinal is, as far as tetanus toxin is concerned, due to the excretion of the poison through the bowel. The toxin was injected through into the stomach or into the rectum of guinea-pigs, but none was absorbed either from the stomach or bowel; neither toxin nor antitoxin could be found in the blood. The poison was not destroyed in the digestive tract, but was passed unchanged along the entire canal and discharged *per anum*.

DERMATOLOGY.

UNDER THE CHARGE OF

LOUIS A. DUHRING, M.D.,

ASSISTED BY

M. B. HARTZELL, M.D.

Psoriasis.

Gassman (*Archiv für Dermatologie und Syphilis*, Band xli, Heft 3) reports two cases of psoriasis which presented unusual features. The first case was that of a girl 12 years of age, who, in addition to a psoriatic eruption of ordinary type upon the face and trunk, had two large and two small horns upon the scalp, consisting of crust-like, gray, horny masses, the largest being eighteen millimetres high. On the left temple was a similar structure. On the left shoulder and the anterior surface of the right thigh were plaques the size of a five-franc piece, several millimetres thick, concentrically lamellated, with a central conical elevation. In the second case numerous warts of the ordinary variety followed a strongly pruritic and much scratched psoriasis, the distribution of the warts corresponding to that of the psoriatic eruption.

The Rontgen Ray in Dermatotherapy.

Schiff (*Archiv für Dermatologie und Syphilis*, Band xlii, Heft 1) reports his experience with the Röntgen ray in the treatment of two cases of lupus vulgaris, and calls attention specially to the following as the most important results: The general inflammatory reaction, which followed in both cases after about ten days' use of the ray and continued a remarkably long time. Second, the specific reaction of lupus tissue to the Röntgen ray, by which nodules not before manifest became visible after illumination. Third, the loosening and falling out of lupus nodules after exposure to the rays. Fourth, the immediate diminution in the swelling of the lymphatic glands in the neighborhood of the lupus foci. Lastly, through the action of the X-rays torpid ulcers seem to be transformed into actively granulating ones.

Factitious Purpura.

Drs. J. Mitchell Bruce and James Galloway (*British Journal of Dermatology*, January, 1898) presented a case of purpura with peculiar features before the Dermatological Society of London. The patient was a man, 29 years of age, a cook by occupation, with a history of excessive indulgence in alcohol. There was considerable edema of the lower extremities, with a profuse eruption of the type known as purpura rheumatica on the thighs, legs, and feet. After rest in bed the purpuric eruption disappeared, but returned immediately after the patient got up. It was then noted that any irritation of the skin, such as might be caused by drawing the blunt end of a pencil over it, produced a white line, which presently became pink. After two or three hours this line became intensely purpuric. In this manner letters, figures, etc., could be made

upon the skin just as in factitious urticaria, except that, instead of wheals, there were hemorrhagic outlines. Upon the trunk factitious urticaria could not be produced.

Diffuse Scleroderma.

Osler (*Journal of Cutaneous and Genito-Urinary Diseases*, February and March, 1898) reports eight cases of this uncommon affection. Three of these were associated with arthropathy; in one pulmonary tuberculosis was present; in one the scleroderma appeared shortly after Graves's disease; in two there were marked vasomotor changes in the extremities; and in the eighth case there was intense general pigmentation with patches of leucoderma. In six of the cases reported thyroid-gland extract was administered for periods varying from ten days to nineteen months. In two of the cases thus treated the disease made no progress while under treatment, but in none of them did the skin become softer or resume its normal appearance. The author's personal experience does not lead him to favor the treatment of scleroderma by thyroid gland.

Painful Dystrophy of the Nails associated with Arthropathy.

Rist (*Annales de Dermatologie et de Syphiligraphie*, No. 11, 1897) exhibited before the Société Française de Dermatologie et de Syphiligraphie a woman, thirty-five years of age, suffering from an affection of the nails, which had commenced four months previously upon the great toe of the right side, all the other nails of the toes being successively attacked. At the time of the presentation of the patient the disease had commenced to affect the nails of the fingers, beginning with the little finger. The malady began with reddening and swelling of the extremity of the toe, which became very painful, particularly around the nail. Sharp lancinating pains were experienced at this period. The nails were elevated at their free border, became friable, and finally fell off, leaving the nail-bed bare. When the disease had arrived at this point, which required about two months, the painful swelling disappeared, articular pains only remaining. The patient had suffered for about seven years with painful swelling of the knees, ankles, and wrists, at times severe enough to confine her to bed. The exhibitor attached importance to the coincidence of the ungual lesions and the articular affection.

A Skin Mole.

Samson-Himmelstjerna (*Archiv für Dermatologie und Syphilis*, Band xli, Heft 3) under this title describes an unusual form of disease occurring in parts of Russia and Bulgaria, due to the invasion of the skin by the larvæ of a species of gastrophilus. In the hot months of summer it usually begins with sudden itching and burning, commonly on some uncovered part of the body, and a red, serpentine, slightly-elevated line makes its appearance, which may extend upon the mucous membranes. This line, which always occurs singly, extends more or less rapidly at one end while it heals at the other, in brunettes leaving a white scar. In most cases the burrows are short, but they may extend to a considerable length. The itching and burning at any particular place cease as

soon as the larva has passed it, so that the patient can tell without difficulty at which end of the burrow the larva is situated. Suppuration has never been observed. The species of gastrophilus concerned and the manner of infection are not definitely known.

Parasitic Melanoderma with Pigmented Plaques upon the Buccal Mucous Membrane.

Danlos (*Annales de Dermatologie et de Syphiligraphie*, No. 12, 1897), at a meeting of the Société Française de Dermatologie et de Syphiligraphie, reported the case of an old man, 60 years of age, who had suffered for a long time from pediculosis resulting in a general melanoderma most marked in the usual places of election,—viz., the nape of the neck, the interscapular and axillary regions, and the waist. In addition to this cutaneous pigmentation, there were many pigmented spots with ill-defined outlines, the size of a lentil, upon the buccal mucous membrane. They occupied exclusively the inner surface of the cheeks and the left border of the tongue. No other cause than the pediculosis could be found for the buccal pigmentation.

BOOK NOTICES.

A Practical Treatise on Diseases of the Skin. By John V. Shoemaker, M.D., LL.D., Professor of Skin and Venereal Diseases in the Medico-Chirurgical College and Hospital of Philadelphia; Physician to the Philadelphia Hospital for Diseases of the Skin, etc. Third edition, revised and enlarged, with chromogravure plates and other illustrations. New York: D. Appleton & Co., 1897.

This new edition of Dr. Shoemaker's well-known work differs from the second chiefly in containing new sections on actinomycosis, hydrocystoma, and mycosis fungoides. The revision seems to have been somewhat perfunctorily done, since, in view of the enormous activity displayed in dermatology during the five years which have elapsed since the appearance of the last edition, one might properly have expected to see greater changes in the text. In a few instances somewhat important subjects have been omitted altogether, while others are dismissed in a manner scarcely commensurate with their importance. Darier's views concerning the etiology of Paget's disease are stated as in the older edition, but no mention is made of the fact that the so-called psorosperms are now generally admitted even by Darier himself to be nothing but altered epithelial cells having no etiological significance. The very interesting and important investigations of Sabouraud concerning the ringworm fungus are dismissed in three lines, leaving the reader very much in the dark as to their significance.

We miss any reference to the *rôle* played by toxins in the production of diseases of the skin, a subject which, if one may judge from abundant recent investigation, gives promise of being of very great importance in explaining the origin of many cutaneous disorders.

We note that, with what we cannot but regard as an excess of conservatism, the author still holds the cause of lupus vulgaris to be doubtful, although the evidence which he quotes himself in favor of its tubercular nature would seem to be sufficient to convince even the most sceptical. But these are, perhaps, minor matters; and we have no doubt that this new edition, like the older ones, will be found a safe and useful guide for the practitioner who is called upon to treat diseases of the skin.

A Clinical, Pathological, and Experimental Study of Fracture of the Lower End of the Radius, with Displacement of the Carpal Fragment towards the Flexor or Anterior Surface of the Wrist. By John B. Roberts, A.M., M.D., Professor of Anatomy and Surgery in the Philadelphia Polyclinic; Professor of Surgery in the Women's Medical College of Pennsylvania; Surgeon to the Methodist and Jewish Hospitals; with thirty-three Illustrations. Philadelphia: P. Blakiston, Son & Co., 1897.

Dr. Roberts's study of fractures of the lower end of the radius has added to our knowledge of this subject. He first describes a number of accurately recorded cases, numbering in all twenty-three. An account of thirty-one museum specimens follows. Finally the results of ten experiments are detailed. From this extended study Dr. Roberts proceeds to discuss the mechanism of the fracture, together with the symptoms, diagnosis, and treatment. The fact that this injury is often overlooked or misinterpreted makes the question of diagnosis one of great importance. This subject has received minute consideration. The method of reduction and after-treatment depend on the deformity present and the tendency to recurrence. The study is a valuable addition to surgical literature.

A Practical Treatise on Sexual Disorders of the Male and Female. By Robert W. Taylor, A.M., M.D., Clinical Professor of Venereal Diseases at the College of Physicians and Surgeons (Columbia College), New York, etc. New York and Philadelphia: Lea Brothers & Co., 1897.

"The aim of the author of this volume has been to portray the various forms of sexual disorder in the male on the basis of advanced knowledge of the anatomy, physiology, and pathology of the various portions of the sexual sphere."

It is probable that the subjects of which this work treats have received less careful thought and investigation than almost any other.

That great misconception has existed in the medical as well as

in the lay mind regarding sexual disorders cannot be denied. This may be accounted for, first, by the fact that physicians have not devoted the attention to this subject that its importance demands; hence the uncertainty in diagnosis, prognosis, and treatment that was too often observed by the patient; and, second, the self-styled "specialists" and charlatans of various types have purposely spread broadcast much erroneous and harmful literature with the view of exciting the apprehension and the credibility of the public, in order to secure a correspondingly large business return. One explanation for the number and success of the quacks who are prating in this department of medicine is that physicians have failed to inform themselves on the subject as fully as they should have done.

Genito-urinary surgeons have been striving for years to break down the barriers of ignorance and to disseminate the light obtained from scientific observation. The result upon the profession is beginning to be apparent.

Dr. Taylor has presented the subject of sexual disorders from the modern point of view. Among the subjects which are still but little understood or that are under debate that have received careful consideration may be mentioned the relations between inflammations of the urethra and sexual impairment, the part played by the prostate gland in aberrations of the sexual function, and the relation of disease of the seminal vesicles to abnormal states of this system. Varicocele, sexual neurasthenia, sexual perversion, etc., have been briefly considered.

In the matter of treatment, the text is usually full and explicit. A number of illustrations have been introduced, most of which are original. Much still remains to be known in connection with the subjects described in this book, but we believe the author has faithfully portrayed the latest and best views in the possession of the profession to-day. The mechanical execution of the work leaves nothing to be desired.

On pages 53 and 54 we observe the name "Pearsol," which we take it was inadvertently employed in referring to Piersol.

The Anatomy and Functions of the Muscles of the Hand and of the Extensor Tendons of the Thumb. By Francis Walsh, M.D. (University of Pennsylvania), of Camden, N. J. Essay awarded the "Boylston" prize for 1897, Department of Anatomy and Physiology, by the Boylston Medical Committee, Boston, Mass. Philadelphia: Charles H. Walsh, 1897.

This monograph of fifty pages is the result of a dissection of fifty-three hands. One would naturally suppose that the anatomy of the hand had long since been fully worked out and accurately described. Dr. Walsh, however, shows that a number of misconceptions and erroneous descriptions have found a place in anatomical literature, and have been handed down from one author to another. The author deserves much credit for his painstaking review of this subject.

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UNIVERSITY

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THE GENERAL MANAGEMENT AND AFTER-TREATMENT OF CATARACT.[1]

By S. D. Risley, M.D.,

PHILADELPHIA,

Professor of Diseases of the Eye, Philadelphia Polyclinic and College for Graduates in Medicine; Attending Surgeon, Wills Eye Hospital, etc.

There are in the wards and private rooms of the Polyclinic and Wills Hospital a large group of cataract patients which have been operated upon recently, and since they illustrate several varieties of opacity of the lens and many interesting phases of the after-treatment of cataract, I have thought to use this interesting group of patients for a running commentary upon the practical management of cataract cases.

The operation for the extraction of cataract is very justly regarded as not only one of the most brilliant and interesting procedures in surgery, but also as one of the most important and difficult. There is, I think, no surgical operation where success depends so largely upon perfect technique. A thorough knowledge of the minute anatomy of the field of operation, clean and well-selected instruments, and a light and steady hand are essential conditions for its successful performance. In addition, you need not only a well-lighted room, but a room so lighted that the operator shall be able to avoid the dazzling of his own eyes by the corneal reflex.

But it is not my purpose to speak so much of the technique of the operation as to urge upon you certain practical points in the preparation and after-management of the patient. There are two classes

[1] Clinical lecture delivered at the Polyclinic Hospital, December, 1897.

of operators entertaining widely differing views regarding the after-treatment of cataract cases. On the one hand, there is a small group of surgeons who operate for the extraction of cataract in their office, and allow the patients to return to their homes without a bandage upon the eyes, while others carefully protect their patients in a darkened room, but with no bandage, and claim good results. On the other hand, there is a group of surgeons, to which I belong, who cannot be too careful in the after-management of their cases, and employ protecting dressings and use every precaution to avoid accidents. I am glad to say, however, that we hear very much less than formerly of indifference regarding subsequent treatment.

One of the serious accidents which follow closely in the train of the simple extraction of cataract is the prolapse of the iris, which is a misfortune to be always deplored. I have never yet seen it occur in which it did not modify more or less deleteriously the results of the operation. In the hands of the most experienced and careful operators it occurs in from 6 to 12 per cent. of their cases of simple extraction, and may occur at any time after the operation, up to the fifth or even the seventh day. I have in my own experience had a case occur on the fifth day, during straining to void urine, in a patient who had an enlarged prostate. This one statement will, I think, demonstrate to you the necessity for more care, since the prolapse of the iris is apt to occur by straining at urination, at stool, in the act of stooping, or by stumbling or any sudden exertion, and the sooner after the operation such acts are permitted the more likely the prolapse of the iris is to occur.

The liability is often manifested at the time of operation during the efforts to complete the toilet of the eye. In such cases the accident may in some instances be avoided by the use of eserine. Where the tendency is marked, the dressings should not be applied until the action of the myotic is manifested, when, if the pupil is not round and central and the prolapse still threatens, a narrow iridectomy should be made before the application of the protecting dressings.

In my own practice, therefore, the preparation of the patient for operation is made with the possibility of this accident in mind. I go so far, indeed, as to—whenever I can possibly do so—operate in the bed which the patient is to occupy, so that there will be no moving from operating-table to bed, and no trundling about the hospital over door-sills, because I am sure that many of these prolapses occur immediately after the operation by an unexpected jolt, which startles the patient, or during the primary dressing. The strain which occurs in raising the patient's head from the pillow to apply a roller bandage may cause a prolapse of the iris. In order to avoid this, in dressing

the patient immediately after operation, I do it in a manner which avoids all necessity for even raising the head from the pillow. In the first place, I close the lids with two pieces of thin isinglass plaster applied in the form of the letter X, over the closed lids of the fellow-eye as well as the one operated upon. Then a piece of gauze moistened in bichloride of mercury solution is placed over these plasters, after which a dressing of absorbent cotton is lightly placed over each eye, and these are held in place by a long piece of isinglass plaster, which passes from temple to temple across both eyes, holding the cotton in place, and then another placed diagonally over each eye from the brow to the malar bone, after which a double-knitted elastic bandage, made of wool, with tapes sufficient in length to pass around the head and tie in front, is placed over the eyes, and held firmly at the temples by an assistant. The tapes are then brought under his head from above until the ends pass out at the opposite sides. These are then drawn against the fingers of the assistant until they are taut, and tied in front over the brow. In this way the dressing is applied without any exertion on the part of the patient. He is instructed to lie perfectly quiet, not even turning in bed for the first twelve hours. I am careful about the first twelve hours, because I feel very sure that a large number of the cases of prolapse occur during this time of the after-management. The patient is seen at the end of the first twelve or fifteen hours. If he is operated upon in the afternoon, for example, he is seen early the next morning, when the outer dressing, including the cotton pad and gauze, is removed. The small pieces of isinglass plaster are then found closely fitted to the surface of the lids holding them firmly together as by a splint. If there is no puffiness of the lids or discharge, or other evidence of inflammatory reaction at this time, the lids are not opened, but allowed to remain for twenty-four hours longer. The plasters are then carefully washed off, the lower lid pulled gently downward, and a few drops of a warm sterile solution of boracic acid are instilled between the lids. After moistening the edges in this way the upper lid is drawn upward carefully, while the patient is required to look gently downward. If things are going badly, the fact usually manifests itself inside the first twelve hours by puffiness or redness of the lids; whereas, if the eye is doing well, it will not be possible to tell from the external appearance of the lids which eye has been operated upon. If at the first inspection the lids are red or swollen, or if there is discharge, or has been pain during the night, then the plasters are removed, the lids opened, and the eyeball carefully inspected.

In the majority of cases, fortunately, nothing goes wrong, but among the most frequent accidents to be expected are the prolapse of

the iris, iritis, or infection of the conjunctiva, all of which ordinarily manifest themselves by discomfort, pain, or increased lachrymation and discharge. Occasionally a prolapse may occur without symptoms, but iritis or infection of the conjunctiva usually manifest themselves by pain, swelling or puffiness of the lids, and in the latter by increased discharge.

Now what are you to do if a prolapse of the iris has befallen your patient? I pursue one of two courses. If the prolapse does not open the conjunctival wound and is therefore covered with conjunctiva, and is not extensive, I prefer to do nothing, except the use of a compression bandage. On the other hand, if the anterior chamber is empty, showing that the wound is still open, or if the iris is exposed, I then open the eye in a good light, grasp the iris, and perform an iridectomy, and endeavor to free the angles of the wound from any entangled parts of the iris. I think you will find that in practice this is the best course to pursue; but when the iris is not exposed, or the prolapse is not very great, it is better to permit it to remain.

One misfortune of the prolapse is the displacement of the pupil. If you have performed a simple operation and left your patient with a perfectly round central pupil, one does not like to see this drawn up towards the locality of the wound, which is sure to occur if a prolapse has taken place.

In the group of cases which are before us in the hospital to-day the prolapse occurred in one of the nine cases, and it happened after the first twelve hours. When I dressed the eye, thirty-six hours after the operation, I found a perfectly fresh and extensive prolapse of the iris, and it had probably occurred during some imprudence of the patient, who was rather intractable. I think he thrust his finger under the bandage and by scratching the eye had burst the wound open and caused the prolapse. Although it occurred so late it was very extensive, but still covered entirely by the conjunctival flap. The prolapse occupied the entire length of my section. I could not, therefore, wisely allow it to remain, so I had his bed taken into the operating-room, opened the eye thoroughly, and grasping the iris, cut it off. This was a week ago, and the eye is doing well.

Among the sequelæ of cataract extraction are a number of much simpler things. One of the conditions which always puts you on your guard is the presence of lachrymal disease in your cataract patients, since the wound is liable to infection from the contents of the lachrymal sac. In one of the patients before us there was a marked disease of the lachrymal sac, which was treated for three or four weeks before the operation, and at the time of the extraction there was no discharge.

The tears flowed off freely, and I felt that the operation under the

circumstances was justifiable, and so the extraction was made; but I must confess with some dread of possible infection of the wound. Extra care was, therefore, taken in the after-dressing of this case. The eye was dressed twice daily, thoroughly washed out with aseptic solutions, and the bandage permanently removed as soon as it was prudent to do so,—that is to say, as soon as the wound was perfectly closed. The patient was cautioned about stooping or making any exertion which might burst the wound open. I think in the performance of cataract extraction we should in cases of disease of the lachrymal sac be especially careful to make the primary incision with a conjunctival flap, so that the wound will heal as promptly as possible.

My method of treating the lachrymal disease, under these circumstances, is to slit up the canaliculus, wash the sac and nasal duct first with peroxide of hydrogen solution, 50 per cent., and then with boracic acid, and finally with a few drops of nitrate of silver, one grain to the ounce. After two weeks of such treatment the lachrymal disease in this case had practically subsided, and there has been no unusual tendency to conjunctival inflammation during the after-treatment.

A very frequent sequel of cataract extraction is iritis, which may manifest itself in a few hours after operation, or be deferred until convalescence has well advanced. When it occurs very soon after extraction it may ordinarily be regarded as either due to traumatism or to infection. In my experience, however, the cases have been far more frequent in which a low grade of inflammatory reaction manifested itself on the fifth to eighth day after extraction. It has been claimed that these cases also are due to infection, the germs having been introduced at the time of the operation, a claim which it is difficult to either demonstrate or refute. It should be remembered, however, that hard cataract occurs after middle life, when in a large percentage of persons the general nutritive processes begin to suffer impairment, which is manifested more or less definitely by rheumatic or gouty tendencies. Now, when we place aged persons with lithemia in bed for four or five days, thus removing them from the usual activities of life, and subject their eyes to the traumatism incident to the extraction of cataract, and that too in an organ, the very appearance of cataract in which is an evidence of impaired local nutrition, it can hardly be just cause for surprise if we find in from five to eight days an attack of rheumatic or gouty iritis. I wish to differentiate particularly between the acute iritis, which often follows soon after extraction, and the late forms described in the preceding remarks. The acute form is usually attended with marked reaction and pain, but in the other group of cases this is not a pronounced feature; indeed, it is unusual to have marked pain in these patients, the disease declaring itself only

by an increased redness of the eye, some discoloration of the iris, and slight synechia between the iris and the capsule.

There is another group of cases of iritis incidentally due to traumatism. That is, where the iris has been pressed into a wound too small for the easy delivery of the lens, or has been injured by replacing the temporary prolapse after delivery. The iris is then bruised between the lens and the angles of the wound or by rude manipulation, and is apt to be followed by traumatic iritis in the course of forty-eight or seventy-two hours. Very often we find the iris glued fast to the lips of the wound in the angle of the anterior chamber, which causes a displacement of the pupil in the direction of the attachment.

I have found it inadvisable to undertake the operation for simple extraction in cases where the pupil does not dilate well under mydriatics, since pressing the large lens through the rigid pupil is liable to set up traumatic iritis. I think, therefore, that it is usually prudent, where the pupil does not dilate, to perform the compound operation,—that is, the extraction with iridectomy. The objection which is urged against the compound operation—viz., the deformity and the dazzling by light—is not justified by the experience of most patients, since the upper lid usually falls sufficiently to cover the deformity which has been caused by the removal of the piece of iris, and thus shades the coloboma and prevents any dazzling by strong light. Of course, this does not hold in the case of those operators who make their iridectomy downward and extract the cataract from the lower limbus of the cornea.

There are a number of accidents which may befall your patients during convalescence. An old lady, an albino with a high degree of myopia, developed cataract in both eyes, one of which I extracted. On the fourth or fifth day, the eye doing perfectly well, her attendant, who was a member of the household and not a trained nurse, while asleep beside the patient, threw her arm over my patient's face, the back of the hand striking her eye. At my morning visit I found the anterior chamber filled with blood. Accidents of this nature demonstrate the need for some protection more rigid than the bandage. I employ a light, shell-shaped, wire screen, which is placed at night over the dressing on the side of the affected eye, and is held in place by tapes passing around the head. In nervous, restless patients this should be kept constantly applied until convalescence is advanced. Notwithstanding all our aseptic precautions, it occasionally happens that the eye becomes infected and is lost by suppurative panophthalmitis. In these days of modern aseptic surgery this probably happens less frequently than formerly. It is probable, however, that aseptic surgery has caused less modification in this respect in ophthalmic than in other branches of surgery. I recall in this connection the case

of a private patient, occupying one of the private rooms in this hospital, who was operated upon with a perfectly fresh set of instruments, which had therefore never been used in any case of infectious disease. All the solutions employed were freshly made and every aseptic precaution taken. The operation was a compound one, but perfectly smooth. The eye was dressed after the method I have described to you, and the patient was left with every prospect of a fortunate result. I saw him the following morning, and found that he had passed a sleepless night, had elevated temperature, pain in the abdomen, and headache. The lids were red and swollen, while a profuse discharge exuded from between them. When the eye was opened I found gray streamers hanging over the cornea from the entire length of my incision, some of them three-quarters of an inch in length. These were carefully wiped away, the wound scrubbed with a cotton brush saturated in bichloride of mercury solution, then dusted freely with iodoform, and the eye rebandaged. Five hours later the anterior chamber was found filled with gray masses. The eye passed rapidly into a state of panophthalmitis, and was lost. The only possible explanation was that the man was very sick. He had a high temperature and suffered greatly from physical depression, in a word, he manifested all the symptoms of an attack of diphtheria. I found, in going over the history, that there had been a child visiting him in the house, who had gone home with an attack of diphtheria only a few days before he entered the hospital, and it is possible that this was an attack of diphtheria following my operation, and that he was the subject of systemic infection. As one of the dire sequelæ which may follow upon the operation of cataract, notwithstanding every precaution, this instance is a striking illustration.

EXTRACTION OF UNRIPE CATARACT, TRAUMATIC CATARACT AND FOREIGN BODY IN THE IRIS, FOREIGN BODY IN THE CORNEA, ROLLING OF THE LIDS FOR TRACHOMA.[1]

By Edward Jackson, A.M., M.D.,

PHILADELPHIA,

Professor of Diseases of the Eye, Philadelphia Polyclinic; Surgeon to Wills Eye Hospital.

J. C., aged 72 years, a laborer, comes to us with the history that about two years ago the sight of the right eye began to fail, and has been growing worse ever since. There has never been any pain in

[1] Clinic at Wills Eye Hospital.

it; its tension is normal and, except some conjunctival hyperemia, its general condition is good. Its vision is reduced to counting fingers at twenty inches, and while the iris is normal and reacts well to light the pupil is occupied by gray opacity, confined to the nucleus of the lens. A pterygium encroaches three millimetres upon the nasal side of the cornea. Upon ophthalmoscopic examination we obtain in all directions a faint fundus reflex through the partially opaque lens. The field of vision and quantitative perception of light are fair.

About six months after the right eye was first affected the left eye became inflamed; and afterwards it had frequent attacks of severe inflammation until all vision was lost, about six months later. Its cornea is irregular, opaque, slightly vascular in all parts, with a small pterygium encroaching on its nasal side. The conjunctiva is hyperemic, there is great enlargement of the scleral veins, and the tension is distinctly increased (+T. 1). It has no light perception.

In the right eye we have unripe nuclear cataract. In the left eye we have an absolute glaucoma, with considerable degeneration of the cornea and deeper structures. Whether in this eye the trouble started as a primary glaucoma or whether the glaucoma was secondary to disease of the cornea or iris we cannot now determine. The practical points are that the left eye is absolutely blind; but, being free from pain without any special danger of injuriously affecting the other eye, there is nothing to be done with it; and the right eye has a progressive nuclear cataract, which is now so far advanced that the man is practically blind, can neither work nor go about alone.

Under the circumstances it seems to me that the indications for extraction of the cataract are positive. I, therefore, proceed to make a "simple" extraction. The corneal incision has to be somewhat displaced upward in order that it may escape the pterygium at the nasal side of the cornea. Having completed the corneal section within the clear cornea, I reintroduce the knife, with its back downward, drawing it from heel to point, as though it were being drawn out of the eye, until the point is again opposite the pupil. Slightly depressing the point, I pierce the lens capsule and push the knife forward, making a linear incision in the capsule parallel with the corneal incision.

Having thus opened the capsule, the knife is laid aside; and with a tortoise-shell scoop pressing on the lower part of the cornea and a spatula on the upper margin of the wound the lens is made to engage in the corneal wound and slowly expelled. It proves to have a large, hard nucleus and the pupil is considerably stretched in its expulsion, but the iris shows no tendency to prolapse.

On closely examining the eye, I now find that a good deal of the clear cortex has been retained within the capsule. This if left will

certainly swell up, become opaque, and prevent any useful vision, at least for several weeks, until it can be absorbed. This is the necessary risk or difficulty about extracting an unripe cataract. Although many writers would lead you to suppose that it did not exist after the age of 60, we find it a very important matter in this patient, aged 72. I shall meet it simply by allowing this cortical to remain and become opaque, and later will do a secondary operation; telling the patient that he will obtain no improvement of vision until after this second operation. I choose this course because the remaining cortex is so clear and adherent that it would be impossible to remove it all, or even the part of it occupying the pupil, without such manipulation of the eye as would materially increase the risks of this operation. The gentlest way to get rid of retained cortex is by irrigation of the anterior chamber with Lippincott's syringe. This will affect the removal of cortex from the anterior chamber and would remove some of it from inside the capsule, but it would not in this case remove all, and the needle operation would still be necessary. Having placed in the eye a drop of a solution of eserine sulphate (1 to 2000) to secure better contraction of the pupil, the eye is closed simply by laying on it a little gauze and light pad of absorbent cotton, retained in place without the slightest pressure by strips of ordinary adhesive plaster passing over it. This dressing is simple, light, and comfortable, makes no pressure, and cannot be displaced, as a dressing is liable to be that is retained by tapes or a bandage passing around the head. (The healing was uneventful, and later a V-shaped incision was made through the capsule and partially absorbed cortex.)

Traumatic Cataract and Foreign Body in Iris.

P. M., a miner, aged 50 years, comes from the anthracite region of this State. One week ago his right eye was struck by a lump of coal which he says blinded him instantly. It now presents a vertical wound four millimetres long in the centre of the cornea, a well-advanced traumatic cataract, the anterior chamber almost abolished, probably from swelling of the lens, the upper margin of the pupil caught in the wound; and extending downward from the middle of the iris below the pupil is a small black foreign body, apparently what he believes it to be, a splinter of coal. There also appears to be a partial rupture of the sphincter of the iris at its lower portion. The pupil reacts slightly to light, and the eye has good quantitative perception of light and has a good field of vision, as tested with the lamp-flame.

There is decided pericorneal redness and a great deal of tenderness of the eyeball, but its tension is normal, and the reaction could not

be considered severe for such extensive injuries. He was admitted to the house and has been under observation five days. The tenderness of the eyeball has diminished. There are, however, two strong indications for operation. The swelling of the lens, which is very likely in a man of his age to cause glaucoma, and the foreign body in the iris, which should be removed.

To meet these indications I make the incision for a cataract extraction with iridectomy; but place it in the lower periphery of the cornea, adjacent to the foreign body to be removed. In the iridectomy I am thus able to remove the foreign body with the portion of the iris. It is unaffected by the magnet; and is doubtless, as the patient thinks, a splinter of coal.

The eye being hyperemic, the operation under cocaine is somewhat painful, and the patient cannot avoid squeezing the lids. It is probable that this lens has been partially dislocated by the injury. The traumatic cataract seems to have been due to a rupture of the capsule rather than to any perforating wound by the foreign body. After the iridectomy the vitreus promptly presents in the corneal wound, and I quickly introduce the lens scoop and remove as much of the lens as possible, including the nucleus and a part of the cortex. This done the eye is closed. The immediate indications having been met the remainder of the cortex is left for absorption with or without a subsequent division of the capsule. (The man left the hospital eighteen days later satisfied with the vision obtained, although it could have been further improved by a division of the capsule.)

Foreign Body in the Cornea.

R. D., a machinist, aged 24 years, comes because his right eye has been inflamed for two days. He did not feel anything get in it, but has been working at an emery wheel. Both eyes are irritable and painful, with pericorneal congestion in the right. The pupil reacts to light, is free from synechia. The iris is normal in color. By ordinary illumination no foreign body is discovered; but in the dark room with the ophthalmoscope, and also by oblique illumination, we find a small brown speck in the cornea opposite the lower outer margin of the pupil. The margin of the pupil downward seems slightly irregular with the appearance of a partial rupture of the sphincter, but on examining the other eye we find that it presents precisely the same appearance, symmetrically placed, so that this is probably a congenital anomaly.

The case illustrates the worthlessness of the history given by the patient with regard to a foreign body. If a small foreign body is embedded in the cornea so deeply as not to scratch the lid the patient

is generally quite unable to recall when it got in and comes simply for inflammation of the eye. While, on the other hand, an abrasion of the cornea or inner surface of the lid will cause the patient to come with a very positive history of a foreign body; and often an account of just how and when it was lodged in the eye, although in reality none is present. It also illustrates the necessity of carefully searching the cornea under oblique illumination, or with the ophthalmoscope, before concluding that a foreign body is not present.

Rolling of the Lids for Trachoma.

Katie B., then aged 10 years, came to this clinic nearly three years ago. At that time she gave the history that her eyes had been sore for three years, her vision was reduced to right, 1/50; left, 5/25. She had trachoma, with well-marked trachoma granules, looking like sago-grains, embedded in the thickened inflamed conjunctiva. Her right cornea was then infiltrated and hazy, with numerous vessels extending into it from the upper periphery. She was treated for some time with applications of sulphate of copper, and then disappeared from the clinic.

She now returns with vision of the right eye improved to 5/50, and in the left eye reduced to counting fingers at two feet. The right conjunctiva is somewhat cicatricial, and still a little thickened, but is smooth and comparatively healed. The left conjunctiva presents great thickening and a few well-marked trachoma granules, especially in the fold where the conjunctiva passes from the lid over to the eyeball. The upper half of the cornea is infiltrated and vascular (pannus). We have admitted her to the house for the purpose of rolling the lids in this left eye.

For this purpose the patient is to be placed under general anesthesia with ether. The operation is quite painful, and cocaine exerts very little influence in diminishing the pain from it. So that without general anesthesia the surgeon is always strongly tempted to hurry through with the painful manipulation of the lids, and the chief value of such an operation depends on the deliberate thoroughness with which it is done. Every portion of the conjunctiva should be gone over again and again, usually three or four times.

The patient being fully under the anesthetic, I proceed by "everting" the upper lid, folding its tarsal on its retrotarsal portion. Then seizing the fold and the upper margin of the cartilage with a pair of conjunctival fixation-forceps, I turn over the whole folded lid, so as to fully expose the retrotarsal fold, or fold of transition from the lid to the eyeball. This is the stronghold of trachoma. Grasping as much as possible of it between the rollers of the forceps and pressing it

tightly between them, these corrugated rollers are withdrawn, stripping the membrane of the peculiar gray exudate characteristic of trachoma. Then I again grasp a different portion of the fold and repeat the stripping movement.

Having gone thoroughly over the lid in this way two or three times, I now place one of the rollers in the fold and the other near the free margin of the lid, so as to grasp the whole of the folded lid between them; and, making firm pressure, again go through the same stripping process with it. Finally, I place one roller on the skin surface of the lid and the other on the conjunctival surface and carefully strip the lid margins. After this the lower lid is gone over in the same way, and then an equal amount of time is spent in stripping the tissue at the outer and inner canthi. Then a second time I thus go over the whole of both lids and commissures.

At the close of the operation you will notice the extreme softness of the lids. Even the cartilages seem to have lost all their normal rigidity. This operation will be followed by very marked swelling of the lids, which will begin to subside in twenty-four to forty-eight hours. It is usually attended with but little pain, and requires no special treatment, although sometimes, if the swelling is excessive, the resident physician employs ice. The operation is one that I frequently do upon out-patients, sending them home as soon as they have recovered from the ether. The improvement in the appearance and the comfort of the eyes is very manifest by the second or third day.

Such an operation will save several months in the treatment of a case, and even where the characteristic sago-like granulations are not well marked, if there be much thickening of the lids, it will prove beneficial. But it is not to be relied on to the exclusion of other treatment. This patient will be expected to attend the clinic for local applications to the conjunctiva at least for several weeks, and possibly for many months, before we can regard her as cured. Even then the cure will not be absolute. The condition will be something like that now shown in the right eye. The eye will be fairly comfortable, useful, and free from inflammation; but will still show decided permanent lesions of the lid and cornea as the result of the disease.

THE USE OF SOZOIODOL PREPARATIONS IN OPHTHALMOLOGY.[1]

By Benjamin Bjelilowsky, M.D.,[2]

SOSNOVKA GUPSONIA TAMBOV, RUSSIA.

In a brief report embodying the results obtained by me in ophthalmic practice at the station Astopowo, I touched lightly upon the uses of sozoiodol salts in eye-diseases. My results at that time were not sufficiently conclusive for a minute report. Now, however, after having treated more than 300 patients with these preparations, I wish to lay before the medical profession my methods of application, treatment, and results.

Acid sozoiodol-diodoparaphenol-sulphur is formed through the union of 55 per cent. of iodine, 20 per cent. of phenol, and 7 per cent. of sulphur ($C_6H_2J_2OHSO_3H$). The salts thereof are the results of the replacement of an atom or two of hydrogen through potassium, nitrogen, zinc, and mercury, thus resulting in potassic, sodic, zincic, and mercuric salts of sozoiodol. The first three salts are found in the form of colorless and odorless crystals that are soluble in thirteen-fifty parts of cold water, and more so in warm water. Sometimes they do not dissolve for several hours, and then only after frequent shaking.[3] The mercuric salt forms an orange-yellow powder, which is quite insoluble in water, but is soluble in a solution of neutral common salt.[4] All of the products of sozoiodol being equally odorless in solution, their utility in medicine, especially surgery, becomes wider in range.

My observations agree with those of von Penzoldt, that in the treatment of burns, contusions, etc., the results have been excellent. In the treatment of catarrhal conditions of mucous membranes, etc., the best effects are obtained with solutions of 1 to 4 per cent. strengths of sodii-zincii-sozoiodol. In tamponing, a 5- to 15-per-cent. solution of sodii-zincii-sozoiodol in vaselin may be used with good effect. In laryngeal and nasal catarrh, atrophic, hyperplastic, dry (sicca) rhinitis,

[1] Read before the Morschansk Medical Association, Russia.

[2] Translated by request of the author to Dr. Charles A. Oliver, of Philadelphia, Pa., from an article published in the St. Petersburger medicinische Wochenschrift, 1897, No. 5, by Samuel J. Gittelson, M.D., of Philadelphia, Pa.

[3] The zinc salt should not be used in concentrated form, as an eschar may follow.—(Translator.)

[4] Mercuric salt is also caustic, but the only one that is poisonous when employed in the concentrated form.—(Translator.)

eczema of the nasal orifices, and tubercular ulcerations of the larynx, Teichman recommends and employs warm preparations of sozoiodolic acid. Incidentally he has found that the sodium salt is but mildly irritant, and that it is very efficacious in the treatment of acute conjunctival inflammations, it being well borne by the most nervous patients.

In gonorrhea I have obtained excellent results from the use of a 4- to 6-per-cent. sodic, or a 1-per-cent. mercuric, sozoiodol solution, the pain and discharge disappearing after several days' time.

I have also had the opportunity of employing it in a case of gonorrheal ophthalmia, in a 15-year-old boy; the blennorrhea, which was in both eyes, was of two days' standing. The lids were much swollen, drooping, and red. The least touch elicited such pain and resistance that the patient had to be held to facilitate careful examination. The left upper lid could alone be everted. Both the bulbar and the palpebral conjunctivæ were intensely injected. The cornea was clear, but was encroached upon by chemosis. There was a copious muco-purulent and ropy discharge. I ordered frequent irrigations with a 4-per-cent. strength solution of mercuric sozoiodol, the same being applied locally as hot compresses during the intervals. Internally I prescribed salol six-tenths centigramme and phenacetin three-tenths centigramme doses three times daily. On the second day the pain lessened and the swelling considerably subsided, though the treatment was rendered less efficacious by an inability to control the patient. The right cornea was slightly clouded. Later I continued the treatment as before, except that the conjunctiva was scarified and a 1 per cent. strength of hydrargyri-sozoiodol salve was ordered to be placed in the conjunctival sac each morning and evening. After three days' time the irrigations were discontinued, and in eight days I discharged the patient almost cured, the only lesion being a faint cloudiness of the outer quadrant of the right cornea.

Encouraged by the successful outcome of this case, I began to apply the same remedy in all conjunctival inflammations and in some corneal and iritis affections.

In acute conjunctivitis with thick secretions, papillary excrescences in the conjunctival folds (where the patient complains of heaviness or stickiness of the lids in the mornings), excoriations at the outer canthus, particularly in children and in cases of blepharospasm, nitrate of silver, weak washes of 1 in 10,000 bichloride, or 1 in 50 boric acid, have been recommended. In chronic cases a symptomatic treatment should be followed. Where the secretion is profuse the mitigated stick should be employed in association with a germicide. In the milder cases, astringents, such as zinc, copper, and tannic acid, are valuable.

My mode of treatment in acute conjunctivitis is as follows: I irri-

gate the conjunctival sac with a 4- to 6-per-cent. strength solution of sodii-sozoiodol, and, after cocainization, I instil a few drops of a 6-per-cent. strength solution of zincii-sozoiodol. When the discharge is thin, I prescribe 10-per-cent. strength sodii-sozoiodol drops and apply locally a 1-per-cent. zincii-sozoiodol or a 1- or 2-per-cent. boric acid solution. With such treatment the duration of the disease, which is usually fourteen to eighteen days, is lessened to six to eight days. I have treated 114 cases in this manner, 80 per cent. of which were cured and about 20 per cent. were greatly improved.

In chronic conjunctivitis, where the discharge is slight and the conjunctiva is rough, I employ a collyrium of 4- to 6-per-cent. strength solution of zincii-sozoiodol or a 2-per-cent. strength salve of hydrargyri-sozoiodol. For use at the patient's home I prescribe a 1 per cent. strength of zincii-sodii-sozoiodol to be used as a wash. I have followed this method in 186 cases, and I have found speedy improvement in all. In every instance nourishment of the conjunctiva became more nearly normal and the subjective symptoms disappeared. Of the proportion of the entire series, over 96 per cent. were cured and nearly 4 per cent. were improved.

In blennorrhea, of which I have had three cases, the disease was gotten under control in a few days without any corneal complications by the treatment above outlined. In all of these cases complications were probably avoided by making early use of the treatment; in one it was commenced on the second day and in the other it was employed on the fourth day.

In phlyctenular conjunctivitis with severe photophobia and ciliary injection I first instil atropine and cocaine, followed by some drops of a 2- to 6-per-cent. solution of zincii- or a 1- to 2-per-cent. solution of hydrargyri-sozoiodol. Almost immediately after the commencement of their employment the photophobia ceased and the regressive stage rapidly advanced. Recently I have had under observation a patient—a female physician—who complained of redness, uneasiness, and burning in the right eye. To the inner side of the conjunctiva there was a triangular phlyctenule the size of a large pin-head with loss of epithelium on its summit. This area was surrounded by a triangular patch of conjunctival vascularity. A 4-per-cent. strength zincii-sozoiodol solution was ordered to be used mornings and evenings. The day this treatment was established pain and photophobia disappeared, followed by recovery on the fifth day. Large phlyctenules I treat with 5 to 10 per cent. strengths or hydrargyri-sozoiodol applied by means of a pledget of cotton, the membrane having been previously cocainized.

In trachoma I employ sozoiodol preparations exclusively. As I

have previously described in detail in another paper, I have had sixteen cases of this disease. Ten of these exhibited the granular form, four were of the mixed variety, and two were of the papillary type with pannus. The method employed was as follows: Under cocaine anesthesia and after everting the lids, I squeezed the granulations with the index-finger until they bled (holding the lid with the other hand). This procedure was followed by a thorough rubbing of the zincii-sozoiodol powder into the subconjunctival tissues. For home treatment I ordered a 3-per-cent. strength solution of borozinc with a 4-per-cent. strength of cocaine to relieve the pain. The membrane that appeared on the conjunctiva the following day I carefully removed without producing any bleeding. This I did by means of a hot water douche or small pledgets of cotton. I followed this with the use of a 6 to 10 per cent. strength zincii- or a 2-per-cent. strength of hydrargyri-sozoiodol solution for three or four days (including the cocaine), when I repeated a similar procedure, until, in three weeks' time at the most, the patient became greatly bettered. When the granulations were prominent I first excised them before I applied any local treatment. In nine instances, after three weeks' time, the cases were bettered. Three, which were improved, relapsed during the second week, and two failed to exhibit any beneficial result. Some types of pronounced trachoma and pannus I bettered by the use of a salve of 5 to 10 per cent. strength hydrargyri-sozoiodol in vaselin.

The future, of course, will demonstrate the question of the superiority of this therapeutic agent over mercury, concentrated lactic acid, sulphate of copper stick, jequirity, salol, and other agents employed in this disease.

In wounds of the cornea, all treatment must be regulated by the existent condition. At first, during the progressive stage, when a great deal of infiltration is present, and the surface and the edges of the wound are unclean, I employ atropine, cocaine, and a bandage, having first washed the wound with a stream of a $\frac{1}{2}$-per-cent. strength hydrargyri-sozoiodol solution. In the regressive stage, when a smooth and flat cicatrix is of prime importance and, above all, as clear a cornea as possible, I rub a 4 to 6 per cent. strength zincii-sozoiodol salve, combined with massage, along the edges of the lids for several minutes. Such procedures in the acute stage of the traumatism ward off the use of the thermocautery or the necessity for a Saemisch operation. With a strong stream of an antiseptic wash, the possibility of septic infection from the conjunctival sac can be removed and the wound prevented from deepening and spreading. In unfavorable cases of serpiginous ulcer or those in which the ulcer threatens to perforate, the

thermocautery or a Saemisch operation play their share; procedures which produce the least opacity and scar.

In corneal maculæ I proceed as follows: I rub small quantities of a zincii- and hydrargyri-sozoiodol salve, 1- to 5-per-cent. strength each, into the conjunctival sac, massaging the tissues afterwards, if possible, over the site of the opacity. By this means I notice that recent opacities clear off more quickly than under any other form of treatment.

In dacryocystoblennorrhea improvement follows with the use of Bowman's probes and washing of the conjunctival sac with a solution of 1 to 2 per cent. of zincii-sozoiodol.

The question of subconjunctival injections of sozoiodol preparations is still an open one, and numerous ophthalmologists cannot as yet determine whether the procedure is valuable or not. Darier, who introduced the subconjunctival injection of bichloride solutions, does not agree with Mellinger, Guttmann, and Bach, who aver that the injections are not only ineffective, but engender irritation and plastic inflammation. With injections of cyanide of mercury instead of sublimate, preceded by cocainization, Darier obtained remarkable results in wounds, hypopyon keratitis, and other affections without exciting any irritation. Fuchs remarks, "Injections are not only indicated in suppurative corneal wounds, but also in parenchymatous inflammation of the cornea, scleritis, iritis, cyclitis, phlebitis, and retinitis." "Furthermore," he says, "the treatment is of service in suppurative wounds of the eyeball, and even in traumatic infection following operation. Subconjunctival medicament is certainly useful in many instances, but is not universally so."

Last year I had occasion to employ injections of bichloride of mercury 1 to 4000 strength in four cases, and this year I used it in six. Two of these were corneal wounds, three were cases of serous iritis, and one was a case of suppurative panophthalmitis. In all no particular improvement followed, and in the cases of iritis such violent pain followed, and such signs of irritation took place, that morphine had to be administered and further injections of the drug abandoned. With injections of hydrargyri-sozoiodol 1 to 2000 strength, on the other hand, my results were much more encouraging. My first case was that of a man suffering with chronic keratoiritis, the vision of the two eyes was 20/100 respectively. After cocainization I introduced half of a Pravaz syringeful of hydrargyri-sozoiodol 1 to 2000 strength into the conjunctiva of the left eye in the neighborhood of the limbus of the cornea. One and a half hours afterwards the patient complained of pain. I took off the bandage, and found moderate superficial and deep injection, with a small red spot where the syringe had entered. I dropped some 5-per-cent. solution cocaine upon the irritated place,

but though the pain continued during the night, it was "bearable" (as the patient explained). The second day I injected a smaller quantity of the solution in the right eye. The pains were slight, and in the course of three and one-half weeks I made six such injections. The irritation following was always lighter than after a sublimate injection. When the patient was discharged his vision equalled 20/40 in each eye. I pursued the same course in three cases of hypopyon, two resulting in marked improvement, while in the other I was compelled to discontinue the method upon account of inflammatory symptoms. In this case I opened the anterior chamber, and flushed it with a solution of ½ per cent. strength of hydrargyri-sozoiodol.

In two cases of croupous conjunctivitis (diphtheritic) I had excellent results by injection and irrigation with the drug. The cases occurred in a boy of 11 years and a girl of 8 years of age, who were brought to me with a pronounced inflammatory swelling of the lids.[1] In everting the lid, which was rather difficult, a gray membrane could be seen on the bulbar and palpebral conjunctiva (resulting in bleeding upon removal) with gray-yellow secretion, and excoriation. The patients had been ill but three days each. Both cases were treated with conjunctival injections of half a Pravaz syringeful 1 to 1000 strength hydrargyri-sozoiodol, with hot fomentations and frequent irrigation with a 1 to 1000 strength solution of the above. On the sixth day they were practically cured. Complication in the shape of a small ulcer appeared in the girl's left eye, leaving but a small opacity.

I cannot undertake to explain how the injections act in such cases. My belief is that beside the stimulating and supporting effect of the material, the lymphatic circulation and the coats of the eye are bettered by the antiseptic and the bactericidal properties of the medicament as it flows through the different channels.

In reporting my observations upon the properties of this class of drugs in eye-diseases, I am far from believing that they are the best and safest therapeutic agents. I do desire, however, that my colleagues in the profession will take the time and trouble to give them a fair trial in order to prove or disprove my results.

[1] In a family of five, suffering from diphtheria, all recovered under serum injections. I diagnosticated the children's cases as diphtheritic conjunctivitis, though in no other situation could I detect any signs of the disease.

AN EXCESSIVELY EDEMATOUS INTRALIGAMENTOUS FIBROID TUMOR OF THE UTERUS CAUSING EDEMA OF THE LOWER EXTREMITIES AND ABDOMEN; HYSTERECTOMY; RECOVERY. SPECIAL REFERENCE TO ASSOCIATED CHANGES IN THE CIRCULATORY SYSTEM IN SUCH CASES.

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I think it can be well said that there is no disease which the gynecologist is called upon to treat surgically which can give him as much concern immediately after operation and during the convalescence of the patient as does now and then fibroid tumor of the uterus. True, in by far the greater number of cases the convalescence is easy and normal, but I am sure many operators will agree that the patient is often not to be considered absolutely out of danger until even three weeks of the convalescence have passed. I have myself found a patient, on sitting up in bed at the end of four weeks, faint, and with the pulse weak and 140. Flaischlen (*Zeitschrift für Geburtshülfe und Gynäkologie*, Band xxxvi, 1897) reports a case where, under similar conditions, pulmonary embolisms occurred at the end of three and five weeks. In a patient operated upon for fibroid tumor, the further course of the case or the convalescence frequently differs from that of similar gynecological operations. In cases in which the most complete asepsis is present (as shown by bacteriologic examination of the wounds of those cases which recover and those that die, the absence of fever and the ultimate recovery of the patient) and the patients live over the period of shock from operation, they may be suddenly taken with heart-failure and die even before a nurse can reach them. I have myself seen three patients die in this manner; one at the end of six days, one on the eleventh, and the other on the fourteenth day; also I have a number of times seen the pulse reach 140 to 180, though the patients afterwards did well.

Therefore there seems to be a certain peculiar relation between fibroid tumors and the heart and circulatory system. The weakened circulation, probably in most cases from degeneration of the myocardium, predisposes to thrombosis, or possibly in some cases degen-

erative changes in the vessels themselves, such as arteriosclerosis, predispose to thrombosis followed by embolism, with shock, and either death or a slow recovery. The actual cause of death, I believe, is pulmonary embolism, although I have been able to find this embolism in only one instance.

The literature furnishes us little information concerning this influence. Now and then a short discussion regarding a single case is seen, but, except a short paper recently published by Lehmann and Strassmann (*Zeitschrift für Geburtshülfe und Gynäkologie*, Band xxxviii, Heft 1), this is all that is to be found. Hofmeier in 1884 reported two deaths before and five deaths at varying intervals after operation for fibroid tumors where the cause of death was apparently heart-failure. Fehling in 1887 saw among fourteen cases four die from heart-failure after operation and two others before operation. Bazor (1895) reports sixteen deaths from heart-failure; Landau (1889) two deaths. Hofmeier has found brown atrophy of the heart in five patients dying from fibroid tumor. Gessner (*Ueber tödliche Lungenembolie bei gynäkologischen Erkrankungen*, 1896) reports twenty deaths from pulmonary embolism after gynecological abdominal operations, and in eight of these the operation was for fibroid tumor. Ten times he found changes in the circulatory system, and in six of these there was a fibroid tumor. In 1890 Berthold said in the Dresden Society that every patient with a fibroid tumor had heart-disease. Leopold and Brosin state that changes in the heart are much more frequent with fibroid tumors than with carcinoma. Ruge (*Zeitschrift für Geburtshülfe und Gynäkologie*, Band xxxviii, Heft 1) says that post-mortem he often sees changes in the heart and blood-vessels where there had been a long-standing new growth of the uterus, ovaries, or tubes, as fibroid tumor, ovarian tumors, and carcinoma. Lehmann and Strassmann, in a paper entitled "Zur Pathologie der Myomerkrankung" (*Zeitschrift für Geburtshülfe und Gynäkologie*, Band xxxviii, Heft 1), report their investigations of an attempt to determine as far as possible this relation between fibroid tumors and the heart and circulatory system by observing the clinical course of seventy-one patients having fibroid tumor at the Universitäts Frauenklinik of the Charité Hospital of Berlin. Among these seventy-one cases there were found twenty-nine (34 per cent.) in which there existed pathological conditions of the circulatory system, as follows: There was dilatation of the left ventricle (with or without hypertrophy) in thirteen, vitium cordis in two, dilatation of right ventricle in six, dilatation of both ventricles in one, dissimilarity of beat and irregularity of heart-action with edema (pulse 180) in one, and angina pectoris in six. Of the cases of angina pectoris there was fatty heart in one (digitalis with result), some form of heart-disease with previous

hemiplegia, tense pulse and edema to knees in one, severe angina in one, pulse 120 in one and 132 in another; in another the patient complained of palpitation, and the pulse was 108 to 116 before operation. Two cases had hemiplegia, and Berthold has described two similar cases. As regards blood-vessel changes, Lehmann and Strassmann found six patients with arteriosclerosis. They also report the results of post-mortem examination in nineteen patients who had had fibroid tumors. Of these nineteen, heart-disease was found in nine (47 per cent.). In one instance the patient had had Basedow's disease, and in this one death followed on the day of operation. On the evening of operation the pulse was 140 to 230. The heart showed brown atrophy. In two cases there was a typical arteriosclerosis with hypertrophy and dilatation of the ventricles. From their investigations they conclude that lesions of the circulatory system exist in an unusually large number of cases. Disease of the heart wall and vessel walls is found frequently with fibroid tumors (arteriosclerosis, fatty degeneration and brown atrophy, hypertrophy and dilatation of the heart, and angina pectoris). They believe that fibroid tumors do cause degenerative disease of the heart, also that they increase pre-existing heart and blood-vessel disease.

Flaischlen (*Zeitschrift für Geburtshülfe und Gynäkologie*, Band xxxviii, Heft 1) believes that heart-disease results from fibroid tumors, and that its cause in most cases is the associated hemorrhage and resultant anemia. Pulmonary embolism, he says, can in these cases result from the heart and blood-vessel disease, also that there is a certain predisposition to embolism in fibroid tumors. The grade of local blood-vessel change in relation with tumors, especially the dilatation of the veins of the broad ligaments, he thinks, plays an important part in the production of thrombosis and embolism, and he believes in such cases the heart and blood-vessels may be normal, as was seen in one case he has observed. Martin (*Zeitschrift für Geburtshülfe und Gynäkologie*, Band xxxviii, Heft 1) states that he has recognized this relation of fibroid tumors to the heart and circulatory system for some time, and believes the diminution of the amount of hemoglobin in the blood is an important etiological factor.

The clinical course of these cases is that usually the patient withstands the operation with little or no shock, and during the next two days the convalescence is normal, the pulse not going above 100 beats. The bowels are open, the abdomen flat, and the patient comfortable. Suddenly and without apparent cause the pulse reaches 130 to 140, and increases in frequency up to perhaps 170 or 180. This increase in frequency of the pulse is the only symptom. There are no symptoms of septic infection, and it is surely not present. If septic infection

were present it would show itself in the further progress of the case, also at the post mortem, but this is not the case. The temperature is between normal and 100° F. or possibly 101°. The rapidity of the pulse continues associated with some prostration for three or four days, or in some instances for a week or ten days, when it either slowly lessens in frequency, or less often the patient suddenly dies. In other cases the convalescence is perfectly normal for from eight to ten days or two weeks, when the patient is suddenly taken with a severe pain in the abdomen or chest, suffers with shock, in which she either dies or slowly reacts with a rapid and feeble pulse, and within a few hours develops the physical signs of pulmonary embolism. The pulse remains rapid for several days and then she slowly gets well. A second such attack may take place.

From the cases referred to and the opinions of prominent operators and pathologists, as described, with my own experience during the last five years at the University and Gynécéan Hospitals, and that of others in this city, I have for some time been convinced that in the treatment of fibroid tumors of the uterus one of the most important factors is the consideration and the determination of the presence and the treatment of disease of the heart and circulatory system before attempting operation. We know that these lesions may be present, although, perhaps, in only a small percentage of the cases coming under observation, yet they are sufficiently frequent to demand serious consideration, and every means should be taken to prevent serious complications after operation. The detection of degenerative changes in the heart is certainly often most difficult, often impossible. Even the expert physical diagnostician will admit this to be true. There is therefore frequently no positive way by which we can determine the presence or absence of such lesions of the heart. There are, however, certain symptoms to be considered which throw some light on the diagnosis of these cases, and allow us at least to consider a possible unfavorable prognosis. Those patients with fibroid tumors who are apt to have a rapid heart after operation usually have a pulse of from 95 to 100 before operation. They are in my experience mostly fleshy women. I have, however, seen the condition in thin women. According to Eisenhart and Martin the blood examination will show a marked diminution in the amount of hemoglobin. Tumors that fill the pelvis and press upon and cause secondary changes in the pelvic veins, with or without edema of the lower extremities, as determined by bimanual examination, should be considered in this class. The increased danger of thrombosis and pulmonary embolism under such circumstances is apparent. The history of previous heart attacks, as angina, fainting, dyspnea, and palpita-

tion, is of importance. In all cases in which there has occurred excessive hemorrhage and the patient is weak and anemic the probable presence of circulatory lesions must be thought of. The impoverished condition of the blood we know can cause degenerative changes in the heart. The resistance of the patient would also be lessened under such circumstances. Congestion of the face is also spoken of by Strassmann. An enlarged thyroid gland or possibly symptoms of undeveloped Basedow's disease I am sure had an influence in one case of mine, and such cases are reported in the literature. The presence of Basedow's disease should, in my opinion, contraindicate operation. A careful physical examination of the heart should always be made, particularly for degenerative changes. Where these symptoms of lesions exist, I believe it is always wise to follow a plan of preparatory treatment before attempting operation, as was done in the case here reported. It is true that the large majority of these cases get well, even if hysterectomy is done at once after the patient comes under observation, but the convalescence is apt to be complicated and the patient may die. There is a tendency among operators generally to rush to operation, and too little importance is given to the medical side of the disease. We cannot afford to disregard the general health of the patient and subject them to a severe operation, although the primary cause of the patient's illness be the gynecological lesion.

The object of the preparatory treatment should be to improve the general health of the patient, to stimulate the heart and circulatory system, thus relieving local and general congestion, which predispose to thrombosis and embolism and prepare the heart for the strain of operation and immediate convalescence. The patient should be placed at absolute rest in bed and should be given nutritious food. Strychnine and digitalis should be administered in sufficient quantities to influence the patient and their action should be carefully watched. The bowels should be regulated. The blood should be examined, and if there is a diminution in the amount of hemoglobin iron should be given. If there is edema of the lower limbs, Basham's mixture and small doses of calomel assist in its elimination, calomel also having a beneficial influence on the intestinal tract. The transfusion of normal salt solution, as advised by Strassmann, tends to diminish the tendency to embolism and the poor and rapid pulse. Excessive hemorrhage should be treated by hydrastis Canadensis, ergot, or, if necessary, by curettement. It is not advisable to operate just before or during the menstrual flow. Treatment should be persisted in for certainly a week, better two weeks, in particular cases three weeks, or much longer. The operator should feel assured that the patient has improved sufficiently to easily withstand operation. After operation the patient should be

kept as quiet as possible; she should not be moved in bed nor should the bed be moved for the first four or five days, better not for a week. The infusion of normal salt solution should be practised if the pulse is weak and rapid, and the patient feels the influence of any degree of hemorrhage. Cardiac and general stimulants should be administered as indicated. Particular care should be observed during the time and immediately after the administering of the purgatives.

This treatment, practised in the following case of excessively edematous and intraligamentous fibroid tumor with associated edema of the lower extremities, abdomen, and lower chest, I am sure saved the patient's life, and will serve to demonstrate the importance in such cases.

Miss B., aged 43 years, Irish, was admitted to the Gynécéan Hospital on January 16, 1898. She had always enjoyed the best of health, never even having had the diseases of childhood, and had been accustomed to hard work as a domestic during the greater part of her life. Her mother, now 75 years of age, is living and well. Her father died when 97 years of age. The menses first appeared when she was 17 years of age, and were always regular and normal, lasting from three to four days, up to the time of her present illness, the onset of which appears to have occurred five years ago. At this time she first noticed that the menses have gradually become more profuse, accompanied with some pain, and lasting a week; also that the abdomen was slowly increasing in size. Two years ago she began to complain of frequent, difficult, and painful micturition, and five months before her admission to the hospital urination became at times involuntary. At this time she first sought medical advice, and the presence of a fibroid tumor was discovered. She, however, refused operation, and continued with her work. The menstrual flow now lasted from ten days to two weeks, and in the intermenstrual period she would have a continuous profuse discharge of watery fluid from the vagina. One month later the lower limbs began to swell and she steadily lost in flesh and strength. She still, however, was able to go on with her work, the menstrual symptoms and edema increasing, until, because of severe pain in the lower abdomen, back, and limbs, excessive edema of the lower limbs, abdomen, and lower chest, causing dyspnea and paresis of the lower limbs, compelled her to give up work and go to bed. All other symptoms had suddenly become worse within three weeks and she was bedridden.

On admission to the hospital the lower limbs were found edematous in the extreme, having a brawny feeling and showing local areas of irritation. The abdominal walls, anterior and posterior, were very edematous. The edema seemed to extend as high as the transverse

nipple line. The temperature was 99° F. and the pulse 95. The heart-sounds at the apex-beat were distant and feeble, the first sound indistinct and the second accentuated. The heart dulness was somewhat increased towards the left. The patient was very weak, somewhat anemic, and was unable to walk.

Vaginal Examination.—The vaginal outlet was nulliparous and the hymen intact. The external os uteri, which was much dilated, was found with much difficulty in the vaginal vault, posteriorly on the left, the cervix being completely obliterated. A semisolid, tumorous mass extended dome-like into the vaginal vault. A tumor, evidently an edematous fibroid, accurately filled the true pelvis and extended into the abdomen as high as the umbilicus. Except that it grew mostly within the right broad ligament, it appeared as a symmetrical uterine enlargement. It was apparent, from this examination, that the edema of the lower extremities and abdomen was due to pressure of the accurately fitting tumor upon the pelvic veins, and also that the difficult and involuntary micturition resulted from injury to the bladder. The urine was carefully examined and found to be normal.

As the patient was seriously ill, the heart beat twenty to twenty-five beats more rapidly than is normal and the heart-sounds distant, and as there was very probably degeneration of the myocardium with dilatation of the right ventricle, and because of the extensive edema, anemia, and general weakness of the patient, I considered immediate operation would inevitably result fatally, and determined therefore to place the patient at absolute rest and under careful treatment until the edema, at least partially, disappeared and the heart condition improved. She was, therefore, placed at absolute rest in bed. Tincture of digitalis, ten to fifteen minims, strychnine sulphate, one-twentieth grain, were administered every four hours as cardiac, circulatory, and general stimulants. Basham's mixture, one-half ounce, every four hours, calomel, one-tenth grain, every two hours, were given as diuretics. Massage of lower limbs and abdomen was practised at varying intervals. The bowels were kept open and a full milk diet prescribed. Under this treatment the patient began to improve at once. At the end of three days the edema had disappeared as far as the umbilicus, and in the lower limbs there was a distinct improvement. The heart condition improved, the heart-sounds being more distinct and the pulse coming down to 85. At the end of a week the diuretics were discontinued, as the edema was rapidly disappearing, and the patient was placed on full diet. After seventeen days the patient's general condition had improved so much, the heart-sounds being more distinct, the pulse normal, and the edema almost entirely absent, that it was thought that the patient could stand the operation of hysterectomy.

This operation was performed on February 1, the abdomen being opened by an incision extending above the umbilicus. The symmetrical tumor described as accurately filling the pelvis and extending into the right broad ligament was at once exposed. Ligatures were easily placed around the left ovarian artery in relation with the pelvic wall and tumor. The right ovarian artery was secured with the greatest difficulty, the tumor being immovable and in close relation with the pelvic wall on this side. The uterine end of this artery and the round ligament were then ligated in the usual manner, and the broad ligaments separated to the tumor wall. A corkscrew was introduced into the tumor in order to make traction. As it was impossible to move the tumor because of the accurate fit within the pelvic cavity, it was found necessary to split the capsule just below the origin of the Fallopian tubes. The capsule was then dissected with difficulty from fully three-fourths of the surface of the tumor. In the line of the broad ligaments tissue was repeatedly ligated close to the tumor and then cut with the hope of securing the uterine arteries. Having carried this dissection as far as possible, and knowing that the cervix uteri was destroyed and that the tumor grew from the lower uterine segment and cervix, where it was quite as large as above, and it would thus be quite impossible to determine the vaginal attachment of the tumor, a nurse was asked to introduce the finger into the vagina. In this way the site of amputation was determined and the tumor removed. As the tumor was amputated from the vaginal vault, a large stream of serum, the size of a finger, exuded from the cut surface of the tumor. The amputated cervix, which was fully four inches in diameter, bled very profusely, but the hemorrhage was quickly and easily controlled by approximating the amputated surfaces with hemostatis forceps. As the tumor was cut away the patient became almost pulseless, and strychnine and whiskey with aromatic spirits were given hypodermically. A pint of normal salt solution was transfused into the breast. The surfaces of the cervical stump were rapidly but carefully sutured together with interrupted sutures. The separated peritoneal capsule covered the site of operation. Bleeding points were looked for, but as none could be found, the abdomen was quickly closed by mass suture and the patient returned to bed. The duration of operation was one hour and ten minutes. An enema of strong hot coffee was given and repeated, and also enemata of normal salt solution. Strychnine and whiskey were used as her condition required. The patient soon reacted, and at the end of an hour and a half the pulse was 96 and the axillary temperature 98° F. Within twenty-four hours the pulse was 78 and the temperature 99°, and from this time on the patient made a normal convalescence, and left the hospital at the

end of four weeks. Four weeks later she reported that she had gained twenty pounds and was about to return to her work, which was that of a domestic.

Pathological Examination of Specimens.—The specimens were composed of an excessively edematous fibroid tumor of the size of an adult head and the normal tubes and ovaries. The left round ligament was very much hypertrophied, measuring two centimetres in diameter. The tumor measured nineteen centimetres in length, twelve centimetres in its antero-posterior diameter, and its general transverse diameter was sixteen centimetres. It grew mostly from the left lateral cervix and lower uterine segment, but was a symmetrical tumor. The tumor contained one small nodule in its substance near the fundus uteri which had undergone fatty degeneration. The capsule of the tumor was absent over three-fourths of its surface. The cervical canal measured two and a half centimetres in diameter, and the tumor at the site of amputation twelve centimetres. The uterine cavity was very much enlarged, measuring seventeen centimetres in length. The endometrium was smooth, and except for small hemorrhages was macroscopically normal. The tumor, except for a distance of one centimetre beneath the capsule, was excessively edematous, composed of a rather coarse net-work of fibrillary tissue infiltrated with serum. The edema is most marked in the lower two-thirds of the growth. The tumor is soft in consistency, and on pressure exuded a large quantity of serum. There were many large blood-vessels to be seen beneath its capsule, ramifying throughout the tumor-substance. The tumor was an interstitial and intraligamentous fibroid of the uterus, growing mostly from the cervix and lower uterine segment, and showing excessive edema of its substance.

In this paper I have not attempted to describe systematically the changes in the heart and blood-vessels which are associated with fibroid tumors of the uterus. Neither have I discussed their etiological relations, as I intend to deal with these matters in a subsequent paper. My aim is simply to point out that such a relation does exist, and that it should be regarded as an important factor in the surgical treatment of these tumors. The mortality in hysterectomy performed for this condition is now, I know, very small, but I believe it would be even less if the condition of the heart and general health of the patient were more seriously considered and carefully treated before proceeding to operation.

A CASE OF ATAXIC PARAPLEGIA; SEVERE PAIN AND MUSCULAR SPASMS FOLLOWED BY BLOOD EXTRAVASATIONS.[1]

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On April 7, 1869, Dr. S. Weir Mitchell reported (*Transactions of the College of Physicians of Philadelphia*, Vol. iv, N. S., pp. 282–288) five cases in confirmation of the neurotic element in the etiology of some forms of blood extravasations. The title of this important paper ("On Certain Forms of Neuralgia accompanied with Muscular Spasms and Extravasations of Blood, and on Purpura as a Neurosis") explains concisely the symptomatology of the disorders. In two of the three cases of the first group under the above title the pain preceded the local muscular twitching, in one the latter symptom preceded the pain; but in both, superficial "bruise marks" followed the paroxysms.

In the second group ("Purpura as a Neurosis") smaller areas (purpuric spots from the size of a pin's head to one-fourth inch in diameter) of extravasation appeared about the feet and calves of the legs following severe pain alone in the legs, and in individuals with no apparent systemic condition to account for it; in whom there was no scorbutic taint. The course of symptoms was much like that of ordinary herpes, but blood-spots resulted instead of the vesicular eruption.

Dr. Mitchell, after quoting the meagre literature bearing upon the etiology of these extravasations of blood, concludes that there are profound changes in sensation, motion, and nutrition in such cases; and that the trophic influence over the vasomotor sympathetic permits this blood-leakage in those of feeble resistance.

The following case is added to the above contribution. It also occurred in the practice of Dr. Mitchell, to whom I am indebted for making the report. J. I. T., American, 33 years of age, ranchman of Fresno, California, where he lived nine years at an altitude of 6000 feet, was first seen November 23, 1897, when the following anamnesis was obtained:

Family History.—The paternal grandfather was gouty, and on the

[1] Read at the Eastern (Ohio) Medical Association, April 12, 1898, and before the Philadelphia Neurological Society, April 25, 1898.

paternal grandmother's side there was a history of heart-disease; she, her father, and two brothers died of it. There is no rheumatism traceable in the heredity. The patient's father was gouty. He died of apoplexy and right hemiplegia, however, following embolism, it is asserted, although no endocardial disease was suspected. One sister died of diphtheria. One sister, two brothers, and his mother are living and well.

The patient was a healthy youth. He had measles and pertussis in childhood, but no other serious malady, though he did suffer from gravel at so early an age as five years, passing at that time several stones half the size of a pea; this is in line with hereditary taint transmitted from gouty ancestry, noted above.

Seven years ago, after exposure, he contracted a small chancre on the dorsum of penis. He was treated insufficiently (for four months), and, thinking himself cured, abandoned all medication, and continued on at ranching in apparent excellent health. One year later (*i.e.*, six years ago), when on his annual business trip to the coast, he claims the dampness affected him much and repeatedly gave him "colds." One day he was taken much worse, ushered in by anorexia and headache, then a chill, and this was soon followed by sudden unconsciousness, in which condition he remained about two weeks.

The patient's mother tells us he had no convulsions during this fortnight, nor before or since, but that he was generally paretic and flaccid, and was confined to his bed one month. The physician in attendance pronounced the case spinal meningitis. The man's convalescence was slow and unsatisfactory. There was not at any time local paresis. In about a month he began to be about, was now stiff in his legs and had headache. He was able to go back to the mountains at ranching in another month, which he did in great activity for two years, although at times he felt weak in his legs and was always very costive. Now he had fleeting stab-like pains in the calves of his legs. This symptom accompanied muscle spasm.

Then (four years ago) he descended again to the Pacific coast-line, where he insists that the foggy damp weather aggravated his condition. He soon began to suffer from numbness, increased pain, and stiffness in his legs after sitting even a short time. When he would arise to walk for expected relief, this stiffness of the lower extremities at first much hampered progression, but after moving about, he finally got some transient relief, only to recur when quiet, and especially during the morning or evening. He gradually became spastic. Stab-like pains in the calves now began to be quite unbearable. Two years ago he experienced difficulty in mounting his horse, due to being unable to throw his limb well over the animal's back. Pain shooting

up and down the outer sides of the knees, legs, and ankles (worse in the left lower extremity) began to be persistently, intermittently tormenting. Grasping both hands around the painful part would seem to ease it for a time. There again appeared contractions of the muscles at the seats of pain during these algesic paroxysms. There was also a sense of constriction in the limbs, more appreciable after a pain cyclone, and also mounting more vaguely up and about the abdomen and chest. These pain-spells had been the most annoying part of his illness and were becoming more aggravated. After the severest attacks of pain, described as atrocious, the patient states he has found "black and blue marks" at the site of the most painful area, whether he had or had not grasped the parts. The areas of extravasation would but slowly disappear, leaving a yellowish area, finally resuming its normal color, as is the history of bruise marks. These areas of extravasation have resulted a half dozen times, and always at site of pain, being from one-half to one inch in circumference and situated particularly about the calves of the legs and upon the outer aspect of both thighs. Within the past year pain has diminished and he has seen no such phenomena described.

At no time has there been any true sciatic distribution of the pain. Recently he has had injections of mercury and *per orem* bichloride of mercury and increasing doses of iodide of potassium, with little relief of the pain.

The bladder became involved about a year ago, first with incontinence, due to visceral weakness; and finally, there ensued a severe cystitis. There is now no enlargement of the prostate gland, so that deficient innervation, as inferred, was then the cause of the urinary disturbance, no doubt. He had an exacerbation of all his symptoms four months before coming East, and was then delirious a short time, and had a transient diplopia. Pain has somewhat subsided in the past few months, muscular strength has but slowly improved, and while he was still a sufferer, as was well shown by his facies when he first consulted Dr. Mitchell, yet he was having none of the severer spells, such as he described, and that were followed by extravasations of blood.

Examination at that time, too (November 11, 1897), revealed the following: Moderate musculature, of tall build, dark hair, symmetrical alopecia, florid complexion, flushes easily, skin clammy and extremities cool; is generally tremulous; gait is a mixture of spastic and ataxic paraplegia; station is very insecure. Knee-joints: Right, ankle-clonus; left, with slight clonus. His legs are much and his arms slightly spastic; elbow-joints = quick reflex. There are no reactions of degeneration.

It is difficult for him to rise out of his chair, and extremely trying for him to mount stairs on account of "weakness and stiffness" of his legs. There is general slight wasting, caused by disuse of the limbs. Station is very insecure; no quick movements are possible. No sensory changes exist other than subjective pain noted and of paresthesia of feet and legs, except perhaps a slightly lessened acuity of touch below the umbilicus on the trunk and in the legs.

There is some tenderness and rigidity of the dorsal spine, but no kyphosis. The tongue is flabby and protrudes straight; fetor of breath extreme,—ptyalism from mercury used in treatment. His heart and lungs are normal. His hearing is good; his pupils respond normally, and the external muscles move well; no diplopia; disks are normal. Urine examination: In the morning faintly acid; specific gravity, 1020; in the afternoon faintly acid, specific gravity, 1022. Albumin trace from pus; no glucose. Bladder-cells and staphylococci in abundance. Indican reaction is present. No excess of uric acid.

The pain attacks that annoy him so much even now are apt to come on worse about 5 P.M., as was so when they were at their acme. I forgot to say that at the time he was having these worst paroxysms, too, he would not notice the extravasations until the next morning after such attacks. We could find no purpuric spots during the first or subsequent examinations.

As to Diagnosis.—The above case seems to represent the Erb type of ataxic-spastic paraplegia, as shown by the vacillation of his symptoms, and from the specific history; also as syphilitic disease of the cord, so frequently has bladder symptoms complicating early, as in this patient; whereas in the Gower's type of somewhat similar postero-lateral sclerosis (a primary system disease) a specific history usually does not obtain, and the bladder is rarely or late affected. Extreme pain is accounted for by early posterior root involvement.

Treatment.—The patient was placed in bed at "rest" with extension and given iodide of potassium in increasing doses up to 250 grains daily, and a simple full diet. At the end of eight weeks this *régime* had effected a great improvement in his walking. He became much less spastic, having gradually been gotten up out of bed at the end of six weeks of this treatment. He then walked one and a half miles without becoming tired, while formerly thirty yards would almost prove impossible. The great improvement in pain-lessening has also been one of the most satisfactory features of his treatment. The persistent bladder incontinence, in spite of electrical treatment, massage, and strychnine, proves the centres controlling that viscus to have been pretty effectually destroyed or the muscle fibres of its walls permanently degenerated, since there is no stricture or prostatic hypertrophy.

Conclusions.—The purpuric spots in this case we have only from the record given by the patient, an intelligent man, so the occurrence cannot be doubted. The amelioration of pain has been commensurate with the less tendency to extravasations, and final cessation of the latter rare phenomenon. I can find no record of similar cases, this being the first case coming under Dr. Mitchell's notice since 1869.[1]

Three generations of gout in relation to this case also lead to the thought of premature arteriosclerosis, rendering the arteries more vulnerable (and hence the nervous system) to the syphilitic infection, apparently of mild form.

The importance of most thorough treatment of specific disease is emphasized in this case also, as even in the late stage it did so much good in absorbing exudates about the posterior roots of the cord, etc.

The prognosis, of course, will be that of slow advance of the sclerotic process already set up. Proof is shown in the treatment adopted that life may be made fairly comfortable.

The man was discharged April 12, 1898, immensely improved, but having to resort to catheterization once or twice daily.

[1] Dr. J. K. Mitchell reminds me that the training of co-ordination of the feet by having the patient walk a straight line, etc., was of much service, too, in the case here reported. Certainly the bettering of his ataxia was remarkable. It is to be noted, also, that within the past year our German friends have made claim to the discovery of this valuable training of ataxic cases; whereas it has been used as a recognized adjunct to treatment during the past dozen years in Dr. S. Weir Mitchell's service at the Infirmary for Nervous Diseases.

Woodbridge Treatment of Typhoid.

Rudolph W. Holmes (*Philadelphia Medical Journal*, January 15, 1898) reports twenty-six cases of typhoid fever treated by the Woodbridge method under Woodbridge's direct supervision and arrives at the following conclusions: (1) Woodbridge treatment does not abort. (2) The mortality is not influenced by the treatment. (3) Five to 8 per cent. of typhoids in an epidemic of mild type or medium severity will cure themselves within two weeks. (4) A user of the Woodbridge treatment who invariably has abortive results does not correctly diagnose *all* his cases. (5) By the Woodbridge treatment complications are not affected. (6) An immediate, positive diagnostic aid is prerequisite to making statements concerning any abortive treatment valuable. (7) Believers in the abortive treatment of typhoid must bear in mind the existence of the *abortive form of Liebermeister*, and the *typhus levis* of Griesinger, to intelligently differentiate typhoid from the diseases with which it may be confounded.

ROYAL COLLEGE OF SURGEONS OF ENGLAND
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Skiagraphic features of a seven months' old fetus.

SKIAGRAPHIC FEATURES OF A FETUS OF THE SEVENTH MONTH—CLINICAL NOTES.[1]

By Howard S. Anders, A.M., M.D.,

PHILADELPHIA,

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The skiagraph from which the accompanying half-tone was made was taken in late summer of 1896, by Professor Goodspeed and Mr. John Carbutt, from a negative on a special Carbutt X-ray plate. The exposure was three and three-quarters minutes. Although the scientific interest, study, and practical value pertaining to skiagraphs have been progressive in intensity and universality, it is doubtful whether, in clearness of definition and detail, much, if any, superiority can be claimed for recent skiagraphs of a fetus similar to this one, which was seen in my practice nearly a year and a half ago.

The mechanical execution in the original is admirable, and reveals certain anatomical features with marvellous fineness. The half-tone reproduction must necessarily be a little less satisfactory. The skiagraph was taken a few days after the death of the fetus, which lived one week only, since (for reasons to be pointed out later) the usual age of viability had not been reached.

The bodily contour (as though viewing through from the rear) is clearly shown by the lighter shadow. The darker outline of the calvarium is distinctly seen beneath the scalp, except at the anterior fontanelle, where the shadows blend. Most of the individual bones are clearly visible: the maxillæ, vertebræ, costæ, clavicles, scapulæ (faintly), pelvis, and bones of the extremities. An interesting feature is the absence of joint-formation in the members, the bony epiphyses not having been formed, so that only the lighter shadows of cartilaginous tissue are revealed. Again, close observations show in the long bones the lighter shadows of the marrow canals, and the darker shadows of the dense, compact bony tissue of the shafts, thicker near the middle of their lengths. A small, triangular, deeper shadow near the right elbow is formed by the ulna overlapping the radius near that cartilaginous joint.

In the right hypochondrium is seen the dark outline of the liver; and blending with it, above and to the left, the lighter shadow of the

[1] Presented to the Philadelphia Pediatric Society, February 9, 1897.

heart. The more or less circular outlines of the intestines, in transverse section, as it were, are also nicely distinguishable.

The fetus was probably about twenty-six weeks, or six and one-half months *in utero*, for the following reasons: first, because of its length,—namely, fourteen and one-half inches (nearly thirty-seven centimetres); secondly, because of its senile, wrinkled face and the marked absence of subcutaneous fat; thirdly, owing to the fact that the eyelashes and eyebrows had barely begun to appear, and the eyelids had apparently been opened but a very short time previous to parturition; fourthly, on account of its obvious non-viability, as a fetus is ordinarily capable of surviving at the end of the twenty-eighth week or the seventh lunar month.

The occipito-frontal diameter of the fetal head was three and one-half inches (nine centimetres); the occipito-mental diameter, four inches (ten and one-quarter centimetres); the cervico-bregmatic diameter, three inches (seven and one-half centimetres): all about one inch less than those of the full-term child.

This fetus was a female of the colored race; and the head shows fairly the dolichocephalic shape and prognathous profile.

The mother had had a miscarriage of a five- or six-months' fetus about one year previous to the birth of this one. There was at that time a very serious and obstinate post-partum hemorrhage, which nearly cost her life. Afterwards it was found that the uterus was enlarged to nearly five times its normal size, and fairly riddled and bosselated with intramural fibroids. Metrorrhagia and menorrhagia were pretty constant, even during the second pregnancy. After consulting with Dr. W. Frank Haehnlen, she was sent to the Samaritan Hospital, and premature labor was induced. The mother weighed only ninety-two pounds, and had a justo-minor pelvis. As stated before, the child survived one week, a remarkable fact in itself, when one considers its probable age and non-viability.

High Arterial Pressure upon the Blood-Flow.

Howell (*American Journal of Physiology*, January, 1898) has made some careful experiments on the effect of sudden removed blood-pressure upon cerebral circulation and says: The general conclusion, which seems to me to follow from the experiments given, is that a rise of pressure, however great, in the cerebral arteries does not cause directly any impediment to the blood-flow, either temporarily or permanently. The circulation in the brain behaves in this respect precisely as it does in other organs of the body; the greater the arterial pressure the more abundant is the flow of blood, and temporary anemia cannot be produced in this way.

ALUMNI NOTES.

Manuscript of President McKinley's Address presented to the Library.

The President of the United States has presented to the Provost of the University the original copy of the address delivered before the University on Washington's Birthday.

Upon the first page of his address the President has inscribed, in his own handwriting, the following words:

"For the University of Pennsylvania, with the cordial regards of William McKinley."

This important document has been deposited in the Library, and may be seen in one of the cases in the main reading-room.

The Students' Ward in the Hospital.

The Students' Ward in the University Hospital was recently opened for inspection. It is a large, airy, front room on the first floor, to the right, in the main hall. The room contains six cots and two fire-places. The furnishing is complete in every respect, excepting that a book-case with books will be placed within a short time for the use of the occupants.

A Re-examination for Fourth-Year Students.

Hereafter a candidate for graduation in the Medical Department receiving a general average of not less than seventy, and a mark on a single branch of between forty and fifty, may have a re-examination in that branch.

Appointments.

Dr. Elwood R. Kirby, of the Class of 1887, has been elected clinical professor of genito-urinary diseases in the Medico-Chirurgical College, Philadelphia.

Dr. Charles I. Redfield, of the Class of '94, has been appointed Health Officer of the city of Middletown, New York.

A New State Alumni Association.

A meeting of the Pennsylvania alumni of Wisconsin was held on April 9, in Milwaukee. There were seventeen alumni present at the dinner, among whom was Judge Noyes, of Milwaukee, a regent of the University of Wisconsin. After the dinner the first steps were

taken to form the "Wisconsin Alumni Society of the University of Pennsylvania." A committee of three was appointed by the temporary chairman to draw up by-laws and report at a future meeting. The meeting was a very enthusiastic one, and many reminiscences and stories were told of days gone by at Pennsylvania.

First Decennial Dinner of the Class of 1888 of the Medical Department.

The chairman of the committee appointed to arrange for this dinner announces that it will be held at the Lafayette Hotel, Philadelphia, on Tuesday evening, June 7, at 8 o'clock. For further particulars address Dr. Randolph Faries, 2007 Walnut Street, Philadelphia.

The third annual meeting of the Western Ophthalmologic and Otolaryngologic Association was held in Chicago, April 7 and 8, 1898. The address of welcome was made by Dr. F. Honrotin, president of the Chicago Medical Society, who, in a felicitous speech, extended to the members the hospitalities of the city of Chicago. Dr. Alt, of St. Louis, Mo., responded for the association. The annual address was then read by the president, Dr. B. E. Fryer, of Kansas City, Mo. After the usual routine business had been concluded, a scientific communication was read by Dr. Herman Knapp, of New York City.

The Ophthalmologic and Otolaryngologic Sections each held five separate and two joint sessions, many articles of interest being read and discussed. The last joint session was occupied with the exhibition of clinical cases.

The Committee of Arrangements, of which Dr. J. E. Colburn, of Chicago, was chairman, was unremitting in its attention to the guests, and nothing was spared that would contribute to the entertainment of the visitors. Thursday evening the members were invited to the ball of the Chicago Athletic Club, where a special programme had been arranged for the entertainment of the members.

The following officers were elected for the coming year: President, Dr. J. Elliott Colburn, of Chicago; First Vice-President, Dr. W. Scheppegrell, of New Orleans; Second Vice-President, Dr. Casey A. Wood, of Chicago; Third Vice-President, Dr. H. Gifford, of Omaha, Neb.; Treasurer, Dr. W. L. Dayton, of Lincoln, Neb.; Secretary, Dr. F. M. Rumbold, of St. Louis, Mo.

New Orleans was unanimously selected for the next meeting, which will take place just before the Mardi Gras of 1899, thus allowing the members to conclude their scientific session with the gayeties of the Carnival season.

EDITORIAL.

THE EXERCISE TREATMENT OF LOCOMOTOR ATAXIA.

The treatment of locomotor ataxia by exercises calculated to teach the patient again the co-ordination of muscles that has been lost by degeneration of the lower sensory neurons has recently attracted considerable attention, and has won for itself the support of many noted neurologists, among whom may be mentioned Leyden, Jolly, Mendel, Eulenberg, Oppenheim, Gerhardt, and Remak. This method of treatment was first introduced by Fraenkel, and has for its prime object the conversion of the simplest ataxic movement into a normal one. In a communication to the *Deutsche medicinische Wochenschrift* for December 17, 1897, Fraenkel describes the various exercises for the hands, arms, body, and legs. For exercising the upper extremities the following directions are given: Sit in front of a table, place the hand upon it, then elevate each finger as far as possible; raising the hand slightly, extend, and then flex each finger and thumb as far as possible; do this with the right and then with the left hand. Touch with the end of the thumb each finger-tip separately and accurately; then touch the middle of each phalanx with the tip of the thumb. Sit at the table with a large sheet of paper and a pencil; make a dot at each corner of the paper and one in the centre, and draw lines from the corner dots to the centre dot, first with the right and then with the left hand. Put ten coins on the paper, pick them up and place them in a single pile, first with the right and then with the left hand. For the body and legs sample exercises: Sit in a chair, rise slowly to erect position without help of cane or arms of chair; then sit down slowly; stand with cane, feet together; advance left foot and return it; then the same with right. Walk slowly ten steps forward and five back with help of canes. Stand without cane, but with the feet a little apart and the hands on the hips; in this position stoop down by flexing the knees, and rise slowly. Stand without cane with the feet separated; raise the hands from sides above the head; carry them downward and forward, and try to touch the toes. Walk along a fixed line on the floor by help of a cane, placing each foot in turn on the line; then repeat without using the cane. Most of these exercises

should be repeated several times, and the movements should be made with the eyes both open and closed.

Owing to disturbance of the sensory paths tabetics have lost the sense of fatigue, so there is some danger in overdoing the treatment. Two things are therefore insisted upon: first, every movement must be done with the greatest possible exactitude, since it is not simply physical exercise that is aimed at so much as training in co-ordination; and, second, the *séance* should not last more than eight or ten minutes, and no more than two should be allowed a day.

In the preataxic stage the exercise treatment has in a number of reported cases prevented the development of inco-ordination. Even in advanced sclerosis remarkable results may be obtained; in a number of instances patients, bedridden for three, four, and five years, have been taught to walk without assistance. The improvement may last for years, if the disease is stationary or only slowly progressive. According to Fraenkel the treatment is absolutely contraindicated in cases of acute or subacute ataxia.

Kalinin (*Vratch*, No. 7, 1897), who has used Fraenkel's method in five cases of locomotor ataxia, draws the following conclusions: By this treatment the loss of motion can be restored to a satisfactory degree, the gait and locomotion gradually becoming safer and firmer. The sense of locality and that of movement, and the skin sensibility, are but little improved. Romberg's symptom very soon became less pronounced. The duration of treatment should entirely depend upon the prognosis and the degree of the motor disturbances present, but in any case it should not be less than a month. No ill effects were observed when the treatment was interrupted at short intervals of two or three weeks, but not longer.

Raichline, who has treated twelve cases with complete success in eight, concludes that the conditions of success are a long, as opposed to a short, course of treatment, a well-nourished condition, good sight necessary for watching the movements accurately, a certain amount of energy and intelligence, not complete loss of sensibility, and the absence of arthropathies.

MEDICAL PROGRESS.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM PEPPER, M.D., LL.D., AND JAMES TYSON, M.D.,

ASSISTED BY

M. HOWARD FUSSELL, M.D., AND A. O. J. KELLY, M.D.

Alcoholic Stimulation in Continued Fevers.

R. C. Cabot (*Boston Medical and Surgical Journal*, December 2, 1897) says he has often thought that therapeutic progress is seriously hindered by the fact that every case is given the best treatment known. The long persistence of the bleeding cannot be accounted for except by supposing that since every patient had received the best treatment known,—namely, bleeding,—physicians had no chance to see how the disease would do without the treatment. Similarly, at the present day, so few physicians have ever seen a severe case of sepsis or pneumonia treated without alcohol that it is very possible that some may attribute to the disease symptoms really due to the treatment.

He also says: (1) Alcohol, like other drugs, should be given to accomplish a definite therapeutic result, and if no signs of that result appear, the drug should be withdrawn. (2) Experimental evidence is much needed. (*a*) As to the effects of alcohol on the toxicity of the urine and the bactericidal power of the blood; (*b*) as to the result of treating acute febrile diseases without alcohol.

Treatment of Tuberculosis.

Von Ziemssen (*Münchener medicinische Wochenschrift*, January 4, 1898, and *British Medical Journal*) draws attention to the still very imperfect state of our knowledge of tuberculosis. He discusses (1) the specific and (2) the climatic dietetic treatment. His results with the new tuberculin have been unsatisfactory, although Koch's directions were strictly adhered to. Occasionally the author has observed an increase of weight, diminution of expectoration and fever, while tuberculin was being used, but the same has been known to occur under other conditions. In local tuberculosis of the skin, bones, and joints, perhaps the results of the tuberculin treatment may be different. For instance, the author has recently seen a case of lupus under Posselt's care in which tuberculin had brought about a cure. Von Ziemssen says that he has no expectations either from the tuberculin treatment or that by Maragliano's serum. The condition of the lungs is far too complicated to admit of a direct action of the tuberculin upon the pathogenic microbe. The lungs cannot be protected from the streptococcus and staphylococcus infections. The value of the open-air

treatment of phthisis is universally admitted. The advantages of high altitudes lie (1) in the air being purer and freer from gases and bacteria; (2) in the greater amount of ozone present; (3) in the diminished pressure; (4) in the rays of the sun being warmer, the air drier, and fog rarer; and (5) in the increase of the red cells induced. The increase in the hemoglobin does not depend on the high altitude. The hardening of the body against atmospheric agencies by the out-door life and hydrotherapy as well as the increased appetite can be brought about elsewhere. The disadvantages of high altitudes consist in the variation in wind, rain, and snow which may make acclimatization difficult. There is also the difficulty in the journey. The treatment in the majority of cases has to be carried out at home. Some well-known sanatoria show that phthisis can be as well treated in ordinary as in high altitudes. The author lays much stress on the formation of such sanatoria for all classes of the community; in them really lies the future of a more efficient treatment of phthisis.

For what Period of Time can Immunity from Diphtheria be conferred by a Single Injection of Antitoxin? The Dosage.

F. G. Morril (*Boston Medical and Surgical Journal*, March 3, 1898) arrives at the following conclusions:

(1) That immunity in any given case, of no matter how thorough exposure to diphtheria, may be conferred, for at least ten days, by the injection of a small dose (100 to 250 units) of serum, provided it is given twenty-four hours previous to actual infection.

(2) That a larger dose (250 units for a child of two, up to 500 units for one of eight or over) will confer safety for three weeks—or, to be a little more conservative, let us say twenty days—under similar conditions.

(3) That no harm will result from the treatment in a vast majority of cases of *sick* children, probably in no case of a healthy child, provided the serum used is up to the present standard of purity.

In conclusion he says that any one who thinks that antitoxin will prevent the occurrence of a follicular tonsillitis or of a coryza in an individual who happens to have the Klebs-Löffler bacillus in his throat or nose will be disappointed; for neither of these conditions constitutes a diphtheria any more than the coexistence of the pneumococcus in the saliva, and a bronchitis constitutes a frank pneumonia. He adds that a physician who fails to promptly immunize the members of a family or close community in which diphtheria breaks out neglects to do his duty by those whose safety lies in his hands.

A Study in Epilepsy.

W. Sinkler and F. S. Pearce (reprint from *Pennsylvania Medical Journal*, September, 1897) say: It is important to remember that epilepsy is a continued disease and that the "attack" is only a part of the state of the patient. The latter may consist of momentary loss of consciousness, stare of the eyes, or slight muscle rigidity, *petit mal*, or may be attended with partial or complete loss of mentality, followed by tonic then clonic convulsions lasting for a few seconds, and the patient usually being dull for some hours afterwards. This is termed *grand mal*. The attack may be ushered in by a more or less long premonition or by an aura. The latter is a psychic phenomenon immediately pre-

ceding the fit. The recognized stages of an attack are (1) spasm of the vessels (pallor); (2) relaxation (convulsion); and (3) recovery. The diagnosis of epilepsy must be made from the transient eclampsiæ. If the attacks soon cease, and there is evident cause, we may exclude epilepsy. From hysteria: the great preponderance of hysteria in females, the persistence of partial consciousness in spite of denial by the patient, and the irregular nature of the clonic spasm, are points. From hystero-epilepsy it is not to be positively differentiated, if we admit this disease to be a combination of hysteria and epilepsy. Cataleptic states are told by the history of the case. Confusion sometimes exists as to apoplectic convulsions or to uremic convulsions and epilepsy. The history and the conjugate eye deviation and paralysis in the first, and duration of fit and urine—the examination in Bright's disease—would clear up possible error in the second.

Prognosis, as to cure, is bad in the large majority of epileptics. After the convulsive state is once profoundly established, it seems futile to hope for more than decided amelioration.

Pathology.—The pathology of organic epilepsy depends entirely on the organic brain-disease (tumor, fracture of skull, meningitis). Essential cases of moderate severity will show no pathological change of the nervous system. Later they are also apt to develop overgrowth of blood-vessels of the brain.

Treatment.—The condition must be battled with along the lines of heredity. The history of this disorder being in a family should interdict marriage. The history of insanity should likewise. Hygienic care of the patient should be enjoined. Attention to reflex disturbances in any of the special senses should be well worked out and corrected. Diet and idiosyncrasies as to food should be specially guarded. Indigestion is, no doubt, an exciting cause of epilepsy and of attacks. Gastro-intestinal therapeutics is of great value. Intestinal antiseptics do especial good in cases of fermentative dyspepsias. Bromides are the standard remedy to stay the spells, and should be given sparingly. Digestants will often aid in lessening attacks as much as any cerebral depressant. Indeed, strychnine may be indicated where atony of the general system obtains. Other drugs that have been of service as substitutes for the bromides are trional, solanum Carolinense, etc., and, finally, Flechsig's opium treatment may do good in exceptional instances. Hypnotism deserves mention as a possible means of relief of epilepsy. Specific treatment should be judiciously employed where syphilitic origin is suspected. Trephining will be indicated in fracture and superficial neoplasms. Post-epileptic manias should be watched for as a guard against homicide.

Thermotherapeia, or the Hot-Air Treatment and its Uses and Possibilities.

E. R. Kirby and J. M. O'Malley (reprint from *Therapeutic Gazette,* November 15, 1897) report having treated over 300 cases at St. Agnes's Hospital, with a grand total of 910 heatings for all cases, including 157 cases of recent sprains, eight of the shoulder-joint, seven of the elbow, twenty-two of the wrist, eighteen of the knee, fifty-five of the ankle, twenty-four of the thumb, and twenty-three of the fingers, with most excellent results. Each case was treated for from forty minutes to one hour, with a general average of five heatings. In none of these cases was any retentive dressing applied, with the exception of the ankle; in all other joints the full limit of heat was applied

for forty-five minutes for small joints, as the fingers and thumbs, and one hour for the larger joints. Our best results were obtained in sprained ankles, all of these cases being heated for a full hour, at a temperature ranging from 300° to 380° F. After each application of heat a Catterell dressing was applied, and the patient told to use the joint as much as possible. The majority of the cases were treated daily; some every third day. Usually one application gave perfect ease from pain; in some cases two applications were necessary before the pain was entirely relieved; and in the great majority of cases three applications were necessary to restore perfect function of the joint. In some of our cases the rapidity of cure seemed marvellous. We have noticed that in subjects with an excessive amount of subcutaneous fat the first application seemed to be followed by an increase of pain and discomfort; this, however, rapidly wears away within a few hours, and the usual relief of pain is then experienced.

Chronic Tympanic Vertigo; Its Cure by Tympanotomy and Removal of the Incus.

C. H. Burnett (*Pennsylvania Medical Journal*, February, 1898) says ear vertigo may be due to disease of the external, the middle, or of the internal ear. The last named form constitutes the rather rare malady termed Ménière's disease. The commonest form of ear vertigo, however, is that due to chronic catarrh of the middle ear, to which I have applied the more explicit name of chronic tympanic vertigo. Chronic tympanic vertigo, when it occurs, is one of the later results of chronic catarrh of the middle ear, being always preceded by tinnitus aurium and hardness of hearing. These latter symptoms, after existing for many years, may suddenly grow worse, the tinnitus being worse by paroxysms. During an attack of increased tinnitus the patient may suddenly feel dizzy. In other instances, after having suffered from tinnitus aurium and hardness of hearing, the patient is suddenly attacked with giddiness without any warning. This varies in intensity in the first attack from a short giddiness to a prolonged attack of dizziness, vertigo, reeling, falling nausea, vomiting, and finally, in some instances, syncope from nausea. These symptoms are due to a spasmodic retraction of the membrana tympani and ossicles of hearing, already thickened and stiffened by chronic catarrhal inflammation of the mucous membrane covering them. This retraction of the ossicular chain forces the stapes unduly into the oval window and compresses the lymph in the labyrinth. Such compression irritates the terminal filaments of the auditory nerve distributed in the ampullæ of the semicircular canals, and produces through the motor filaments of the auditory nerve irritation of the cerebellum and reflex disturbances in equilibrium.

At first these attacks may be comparatively mild and far apart. Then with variations in the general health of the patient, in the condition of the atmosphere and the advance of the middle-ear disease, the attacks gradually increase in frequency and severity. Most of the time the patient receives no treatment or an improper one. Alteratives do no good, and depletives do positive harm. Nine years ago it occurred to me that the retractive force of the ossicular chain upon the stapes could be prevented safely by the removal of the incus, the link between the tensor tympani and the malleus on one side and the stapes on the other, and the stapes thus liberated from its impacted position in the oval window. Dr. Burnett operated on twenty-eight cases without any serious reaction, and there was immediate, entire, and permanent relief from ear vertigo.

SURGERY.

UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.,

ASSISTED BY

ELLWOOD R. KIRBY, M.D.

A New Method of Intestinal Anastomosis.

The possibilities in surgery (*Medical Record*, February 12, 1898), and especially in abdominal surgery, appear to be practically illimitable. But a few years ago, and the prediction that the operation for removing the entire stomach could be performed with any degree of success would have been scouted as the vaporings of a dreamer. Now that this apparently impossible feat has become an accomplished fact, it would be rash to assert that any operation, however radical, is too difficult for the surgeon to attempt with the hope of good results. This advance in practical surgery, in which our country has played a satisfactory part, is undoubtedly one of the most striking features of recent years. Almost every week some novel mode of performing an operation is suggested or tried. This is as it should be, for it is in experiments that the path which leads to final success lies. Dr. J. Shelton Horsley, in the *New York Polyclinic* for December, describes a new method of intestinal anastomosis that has occurred to him, and which has been tested on animals and the cadaver. From a perusal of this article, it would appear that the means proposed by Dr. Horsley are both feasible and simple. These are as follows: "After the incision in the abdominal wall, the diseased intestine is drawn well out of the abdominal cavity, and sterilized tapes are placed through the mesentery several inches from the point to be resected, and tied round the intestine just tightly enough to check the fecal flow. Fecal matter is stripped from between the tapes before they are tied. The intestine is resected, bleeding points in the mesentery are secured with artery-forceps and ligated with silk, and the ends mopped out with moist bichloride sponges. The mesentery is incised for several inches at right angles to the intestine, or a V-shaped section removed to facilitate the subsequent manipulation. The ends of the bowel are then placed side by side, opening in the same direction and being in contact along their free surfaces opposite the attached mesentery. A pair of artery-forceps inserted in the ends and clamped holds them in this position. A finger of the left hand is inserted into one end of the intestine and the thumb into the other, and over them as a bobbin a Cushing suture of fine silk in an ordinary cambric needle is commenced. The first stitch approximates the portion of the two limbs of the intestine near the mesenteric attachment. The suture is then carried obliquely for about two inches, when dealing with the small intestine, to the border opposite the mesenteric attachment, and continued over the other side, where it stops at a place corresponding to its point of commencement. Here the needle is left on the thread, and an artery-forceps, padded with sterilized gauze to prevent injury to the thread, seizes it where it emerges at the last stitch. This keeps the sutures tight. The bowel is now partly everted, exposing a U-shaped septum, grasped by the artery-forceps first applied. This septum is cut away with curved scissors, leaving a margin of one-third of an inch. An overhand

suture of silk in a curved needle is then commenced at one edge of the 'shelf' left by cutting away the septum, and is carried through all the intestinal coats. When the suture reaches the end of this shelf, it is continued by slightly invaginating the rest of the resected ends, which consists of about one-fourth of the entire circumference. It terminates at its point of commencement. The first line of sutures is now finished by continuing it about one-fourth of an inch from the overhand suture. The incision in the mesentery is closed, the intestine lightly sponged with gauze wrung out of hot sterilized salt solution, and dropped back into the abdominal cavity." It is claimed as a special feature of this manner of operating that all fear of stricture is removed. Experiments made on three dogs by Dr. Horsley resulted as he had anticipated.

Sarcoma of the Kidney in Children; a Critical Review of the Pathology, etc., as seen in One Hundred and Forty-five Cases.

George Walker, Baltimore (*Boston Medical and Surgical Journal*, January 20, 1898), in this instructive contribution, summarizes and analyzes this large number of cases, and makes the following conclusions: Malignant tumors of the kidney in childhood occur most frequently either congenitally or within the first few years of life. That they are all of them probably embryonic in origin is evidenced by the fact that they contain distinctly embryonic tissue. While not being pure sarcoma, they resemble it in their most prominent features. They are rapid in growth, and are not attended with any distinctive systemic symptoms in the first half of their course; in the latter part of it they are accompanied by rapid and great constitutional disturbance.

They occur most frequently between 1 and 2 years of age. The left kidney is more often affected than the right. The disease occurs with about equal frequency in males and females. The average duration of life without operation is about 8.08 months; with operation it is 16.77 months.

Operative treatment, to be successful, should be instituted early; but even in the late cases an exploration should be made. The immediate operative mortality is 38.25 per cent.; the ultimate one between 74.32 and 94.53 per cent.; 5.47 per cent. are cured; and the period of living is lengthened by 8.08 months by operation.

Splenectomy for Injury.

Bernhard (*Münchener medicinische Wochenschrift*, November 23, 1897) relates a successful case of splenectomy performed for rupture of the spleen without external wound. Some 160 cases of splenectomy have been reported for various conditions. The mortality has been 89 per cent. in cases of leukemia, and 36 per cent. in other cases. In twenty-eight cases the spleen was ruptured and prolapsed into the wound, and the results of the splenectomy here were favorable. There are only six cases on record in which the spleen has been extirpated for rupture without external wound, and five of these died. The author then reports his case in a lad, aged 19 years, over whom a wagon passed. The patient was admitted shortly afterwards, when marked anemia, collapse, nausea, retention of urine, etc., were noted. In the most dependent parts of the distended abdomen there was dulness on percussion as well as over the left hypochondrium. The diagnosis of profuse intraperitoneal bleeding due to rupture of the spleen was made. Splenectomy was performed, the clots

removed, and the peritoneal cavity washed out. Intravenous transfusion was done before the operation, and the cannula left *in situ*, so that the transfusion could be continued during the operation if the pulse became bad. The diagnosis was made owing to the nature of the injury, the signs of abdominal hemorrhage and the percussion dulness in the splenic region. Extirpation of the spleen could alone arrest the hemorrhage. The transfusion had much to do with the favorable result. The recovery, so far as the anemia was concerned, was prolonged. A few days after the operation the hemoglobin stood at 25 per cent., and rose in four weeks to 50 per cent., and in four months to 85 per cent. The number of red cells stood at two and a half to three millions shortly after the operation, and rose in four months to four millions. There was no swelling of glands, no enlargement of the thyroid, and no signs of leukemia. The absence of the spleen was the cause of the slow regeneration of the blood.

The Medical and Surgical Treatment of Harelip.

Mumford (*Boston Medical and Surgical Journal*, March 3, 1898) states that the important points in the treatment of harelip include the following considerations:

(1) Harelip babies are not necessarily feeble at birth, and by proper feeding can be kept up to the normal standard.

(2) Keep the field clean with aseptic washes before the operation.

(3) Operate in the sixth to the eighth week.

(4) Do not slash with scissors, but cut and trim carefully with a knife.

(5) Free the upper lip thoroughly from the jaw.

(6) Anchor the nares with shotted wire.

(7) Use no pins or heavy outside sutures.

(8) Use *crêpe lisse*, not surgeon's plaster.

(9) Leave the heavy inside stitches for six days.

(10) After operation give especial attention to the care of the bowels and to proper feeding, as on this very often hangs the whole success of the operation.

Resection of Cervical Sympathetic for Exophthalmic Goitre and Epilepsy.

Jonnesco (*Revue de Chirurgie*, No. 11) draws the following conclusions as to resection of the cervical sympathetic for exophthalmic goitre:

(1) The total and bilateral resection of the cervical sympathetic is a possible operation, and without ulterior consequences.

(2) This operation is indicated in the treatment of exophthalmic goitre and essential epilepsies.

(3) In exophthalmic goitre the total bilateral resection has been followed by very successful results.

Treatment of Tubercular Arthritis by Intra-Articular Injections.

Duplay and Cazin (*Revue de Chirurgie*, No. 11) report their result on the injection method of locating tubercular arthritis. While formerly using a solution of iodine according to the Durante formula, they now make use of a 10 per cent. ethereal solution of iodoform. The only disadvantage to the use of this injection is the intense pain which results. Five cubic centimetres are to

be injected twice weekly, but if the case does not respond quickly to treatment the injections may be repeated every two days.

The results obtained were very satisfactory. In the majority of cases it is better to combine the injection treatment with rest and fixation of the affected joint.

Five cases of tubercular arthritis of the knee were cured, and were entirely free from return when seen, six months later.

THERAPEUTICS.

UNDER THE CHARGE OF

HORATIO C. WOOD, M.D., LL.D.,

AND

ARTHUR A. STEVENS, M.D.

Treatment of Obstinate Dropsies.

Tyson (*Therapeutic Gazette*, January 15, 1898), in a paper on the treatment of obstinate dropsies, points out that there are two ways in which the effusion may be reduced: first, by cutting down the liquid ingested, and, second, by increasing the output of liquids. The first of these, he believes, has been too often ignored. The ingestion of large quantities of water for its supposed diuretic effect is apt to increase the effusion rather than lessen it. Much good is often accomplished by limiting the ingestion of liquids to a minimum. A satisfactory plan is to put the patient on a diet of milk limited in quantity. Two to four ounces of milk may be given every two hours and continued until the patient complains of hunger. The dropsy often does not begin to disappear until the patient begins to complain of hunger. Later the milk may be gradually increased.

A further indispensable condition of successful treatment is absolute rest in bed. Rest and regulated diet being secured measures should be employed calculated to increase the output of fluids by natural channels,—the kidneys, the bowels, and the skin. It is a waste of time and good medicine to attempt to secure the effect of diuretics without the preliminary action of a purgative. Of purgatives the best are Rochelle and Epsom salts. Compound jalap powder is an admirable aperient in one- or two-drachm doses. Calomel in doses of seven and a half to ten grains, with an equal quantity of sodium carbonate, may be substituted, but is slower in its action, hence it can be most conveniently given in the evening, and followed by a saline in the morning. It is of great practical importance to give the saline in as small a quantity of water as possible, preferably not more than four ounces. Digitalis is the best diuretic available. The tincture is the most suitable preparation. It is better administered in full doses, at longer intervals, than in small doses at closer intervals. Ten to fifteen minims of the tincture may be given three times a day, and at the end of two days, if no diuretic effect is produced, the dose may be increased to one drachm in the twenty-four hours. Should the pulse fall to 60, the drug should be discontinued, even though no diuretic action is produced.

In cardiac dropsy theobromine sometimes proves superior to digitalis. It may be given in doses of seven and a half grains every three hours.

This dosage is kept up for six days, at the end of which time, if diuresis has resulted, the effect will begin to wear off. On the last day of its administration digitalis may be given and continued after the suspension of the theobromine. His experience with diuretin has not been satisfactory. Next after theobromine—indeed, often before it, especially in renal disease—comes sparteine sulphate. The dose should never be less than one-fourth grain to adults to the amount of two grains in the twenty-four hours. It may even be increased to three or four grains in this period. As regards strophanthus, he has been much disappointed in its action as a diuretic. Another remedy not to be forgotten in obstinate cases is the time-honored combination of squill (one grain), calomel (one-half grain), and digitalis (one grain), every three hours, until diuresis, free purgation, or both, have been obtained.

Sweating is not usually so satisfactory in dropsies as diuresis and purgation, since copious diaphoresis is apt to produce profound weakness. Sweating is induced by the application of dry and moist heat. One drug only is markedly efficient to produce skin action,—viz., jaborandi or its active principle, pilocarpine.

One-fourth of a grain, preferably hypodermically, should be the maximum dose, and a powerful effect may be produced if it is associated with artificial warmth. Should dangerous edema of lungs arise, it may easily be controlled by hypodermic injection of one-one-hundredth or one-fiftieth of a grain of atropine. Similar to the action of cardiac tonics and destined to be a valuable auxiliary in the treatment of dropsies, especially when the heart is at fault, is the Schott or Nauheim treatment by baths and exercises. The baths are imitated at home by dissolving sodium chloride and calcium chloride in water, to which carbonic acid gas is added by decomposing bicarbonate of potassium by hydrochloric acid. The exercises are not commenced until some very positive effect of the baths is secured, when they are associated with the baths or substituted after the latter are discontinued. In connection with the baths, Tyson has employed massage with most satisfactory results.

There are cases in which all the resources described fail of their purpose, and liquid remains stored away in the interstices of the body and in the serous cavities. The latter may require to be relieved by paracentesis of the chest and abdomen, and the former by punctures made with the needle, and incisions into the limbs or the scrotum, which often becomes enormous. Into these parts Southey's tubes may be inserted and many ounces of liquid thus drained away. These tubes must be carefully watched and kept aseptic as possible, as by neglect of such precautions septic inflammation may be induced. Punctures may be made by the needle or by the scarificator. But these punctures soon become very annoying to the patient, and he is inclined to think an incision, say behind the ankle, done under local anesthesia, is to be preferred. Anesthetics should not be omitted, as the patient is enough annoyed by his sufferings, and he should not be allowed to suffer more than necessary.

Oxygenated Water in the Vomiting of Pregnancy.

Gallois (*Journal de Médecine de Paris*, November 7, 1897) has obtained good results from the use of oxygenated water in the vomiting of pregnancy. It is employed as follows: A dessertspoonful of the water is put into a pint

of water, which the patients take during meals, mixed with wine. According to the observations collected at the Charité, recovery takes place almost immediately; for the following two days there is no vomiting; but if the employment of this water during the meals is interrupted, the vomiting begins again.

It is a very simple treatment and one which has, up to the present time, shown itself constantly efficacious and without danger.

M. Gallois recommends the use of hydrogen dioxide, and not that of water charged with oxygen.

Permanganic Acid in Neuralgia.

Walsh (in a recent communication to the *Therapeutic Gazette*, February 15, 1898) states that Eulenberg has used permanganic acid in some thirty cases of obstinate neuralgia. He believes that while it does not always give relief, it often gives marvellous results, and should always be tried before resorting to operation. It must be injected directly into the substance of the nerve, and this causes considerable pain for a time. There are no complications or sequelæ of the treatment. Frank presented at a recent meeting of the Society for Internal Medicine, Berlin, two cases of facial neuralgia that had become so unbearable that there was question of operative interference. In one case a single Pravaz syringeful, in the other two such injections of a 1-per-cent. solution of permanganic acid, gave complete relief, lasting now for more than a year in each case.

Euchinin in Malaria.

Gray (*British Medical Journal*, February 26, 1898) finds that euchinin is a more powerful antipyretic than quinine, and that, in malarial fevers at least, ten to fifteen grains of euchinin are as efficacious as twenty to twenty-five or thirty grains of quinine sulphate, and that it nearly always, in doses of twelve to fifteen grains, causes buzzing in the ears, if not other symptoms of cinchonism. The largest dose he has given has been fifteen grains once or twice a day, always commencing with a good purge. To sum up:

(1) Euchinin is as effective as quinine in malarial fever.

(2) It causes cinchonism.

(3) It is tasteless, therefore easily administered. This is its great advantage over quinine.

The readiest form of administering euchinin is the simple powder placed dry on the tongue and washed down by a little water. As it is very bulky, some patients prefer it in cachets; but all solutions of euchinin are decidedly bitter, presenting no advantage whatever over quinine.

If euchinin can be proved to be even nearly as effectual as quinine, its tastelessness alone should recommend it to many as a substitute, notwithstanding that it is not altogether free from some of the other objections to quinine.

OBSTETRICS.

UNDER THE CHARGE OF
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ASSISTED BY
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Atresia Ani Vaginalis.

Fitzgerald (*British Medical Journal*, April 9, 1898) records a case of atresia ani vaginalis in a little girl of 3 years. Until the child was 2 months old nothing abnormal was observed. A slight relaxation of the bowels then necessitated more careful attention to the parts, and it was discovered that there was no anus. The child, who was well nourished and in good health, suffered very little inconvenience. On examining the parts the normal anal depression was found to be absent, and nothing to indicate the normal situation of the anus was observed. Situated just within the entrance to the vagina could easily be seen the fistulous opening, and, except that the vulva was slightly swollen and excoriated, the surrounding parts were normal. Congenital malformations of the rectum and anus occur in the proportion of 1 in 10,000 births. Bodenhamer classifies these under eight headings and Treves under three.

The Location of the Placenta.

Lindstrom (*Münchener medicinische Wochenschrift*, No. 5, 1898) has followed this method of Leopold in investigating the location of the placenta in a series of 100 cases, and in order to test the correctness of the method has made a controlling examination five or six days after labor, an examination being easier at that time than immediately after labor, and provided thorough aseptic precautions are taken is almost free from danger. As a result of his investigation it was found that the placenta was correctly located in 92 per cent. of the cases. The diagnosis is possible as early as the fifth or sixth month. The location of the placenta is not without practical value, since, in cases of Cesarean section, the incision, or when it becomes necessary to induce premature labor, the introduction of the catheter may be modified in order to avoid causing injury to the placenta.

Ureteral Catheterization.

Reynolds (*Boston Medical and Surgical Journal*, March 17, 1897) has catheterized the ureters during the past three years for supposed surgical disease of the kidneys seventeen times, all the patients being women. He states that of the various methods of ureteral exploration of the kidneys in women, the study of the separated urines of the two kidneys takes the chief place, and furnishes us with a method of physical examination of the kidneys which is so far accurate and safe that the ureteral catheters occupy to the surgery of the kidneys in women much the same relation which the stethoscope has so long held to the medical diseases of the chest. The importance of this examination rests

upon the fact that it enables us to isolate the disease and to determine with certainty not only which kidney is affected, but exactly what the condition of each kidney is. The points worth noting especially are: (1) The symptoms may be transposed,—that is, the pain and tenderness may be referred by the patient to the comparatively sound kidney. (2) There may be a transitory inflammatory affection of the sound kidney which should lead us to defer operation until it has passed away. (3) The choice between nephrotomy and nephrectomy, and sometimes the decision as to whether any operation is or is not permissible, should be decided by a comparison of the relative condition of the two kidneys. (4) In cases of renal calculus the question between nephrolithotomy and nephrectomy must depend largely upon whether the condition of the affected kidney affords a prospect of good healing and a useful kidney after nephrotomy.

Spontaneous Rupture of the Uterus.

An interesting case of this accident is reported by Hubl (*Centralblatt für Gynäkologie*, No. 1, 1898). The patient, in her tenth pregnancy and in a poorly nourished condition, was admitted to the clinic, and gave the following history: For three weeks she had suffered from frequent hemorrhages from the vagina, associated with great edema of the legs. A physical examination showed that the heart, lungs, and kidneys were healthy, the pelvis normal, and the cervix, which was dilated sufficiently to admit two fingers, was free from placental tissue. The fetal head, which was somewhat large, was resting above the superior strait. In order to induce active uterine contraction a colpeurynter was introduced and the woman placed in a hot bath. The colpeurynter was removed in two hours' time, and, notwithstanding the fact that the pains were but slight, a full dilatation of the os was noted. The membranes were then ruptured without any loss of blood following. In a few minutes the patient complained of severe pain, and examination showed a decided change in the abdominal contour. The appearance was as if the bladder had suddenly extended to the umbilicus. Immediately after this a living child was spontaneously expelled, and there escaped a large quantity of fluid and clotted blood. Hemorrhage then ceased, but the pulse grew progressively weaker and the patient appeared to be in a serious condition. After the removal of the placenta a transverse tear, about eight centimetres in length, was found lying just above Bandl's ring. The muscular layer only was involved, while the peritoneum appeared to be intact, although separated from the uterus and projecting as a pouch. An intrauterine tamponade was made, and the uterus was anteverted and fixed by an external compress. Hemorrhage was thoroughly controlled, restoratives were administered, and the general condition of the patient was much improved. Suddenly, six hours later, the patient collapsed and died before assistance could be rendered. A post-mortem examination showed a clearly defined tear of the muscular and mucous coats, while the projecting peritoneum formed a pouch filled with blood-clots.

Delivery Three Years after Symphyseotomy.

An interesting case which goes to prove that the increase in the pelvic diameters after the operation of symphyseotomy may remain permanent is reported by Hansen (*Monatschrift für Geburtshülfe und Gynäkologie*, Band vii,

Heft 1, 1898). The patient was a woman, 36 years of age, whose first confinement had been difficult and instrumental, the child being still-born. The second confinement had been so difficult that uterine rupture was threatened, to obviate which a symphyseotomy was performed, the bones separating to the extent of six centimetres, and the child being delivered by forceps. A perfect recovery followed. Three years later the woman again applied for delivery. Examination showed the child lying in a transverse position, the os dilated, and a non-pulsating cord presenting and prolapsed. Podalic version was performed, and the child expelled spontaneously. During its passage through the pelvis the symphysis separated to the extent of three centimetres. A perfect recovery followed.

The Axis-Traction Forceps.

Stadtfeldt (*Bibliotek for Laeger*) reports that during the time from 1892 to 1895 there took place in the Copenhagen Royal Maternity Hospital 6294 confinements, 242 of which were terminated by forceps, which is not a large proportion when the fact is borne in mind that the proportion of primiparæ to multiparæ was as 100 to 73. The axis-traction forceps was used in forty-five cases. According to Stadtfeldt the head should either be fixed or in the pelvic inlet before the forceps is applied; then, if properly performed, the operation is free from danger, but the mortality to the child is rather high,—16 per cent. being still-born. If after three or four tractions the head does not advance, Stadtfeldt advises perforation.

GYNECOLOGY.

UNDER THE CHARGE OF

CHARLES BINGHAM PENROSE, M.D.,

ASSISTED BY

H. D. BEYEA, M.D., AND H. L. WILLIAMS, M.D.

The Value of Laparotomy in the Treatment of Tubercular Peritonitis.

Monti (*Wiener klinische Wochenschrift*, No. 42, 1897), in an elaborate article on the subject of tubercular peritonitis, read before the Twelfth International Medical Congress, at Moscow, comes to the following conclusions as to the therapeutic value of operative interference:

(1) It is possible to cure tubercular peritonitis with serous exudate, by medical treatment, without operative procedure, though much less frequently, and always more slowly than by laparotomy.

(2) Although, in such cases as the above, good results are obtained, relapses and subsequent outbreaks in other parts of the body are not prevented from occurring.

(3) When extensive adhesions of the intestines or coincident swelling of the mesenteric glands occurs, and only a slight amount of fluid exudate accom-

panies it, the results of operation are not satisfactory, and may lead to a fatal termination.

(4) In cases with serous effusion and without extensive adhesion of the bowels, or swelling of the mesenteric glands, good results may be expected from operation. But in other conditions of tubercular peritonitis the experience up to the present time is too slight to justify a statement as to the value of operative treatment.

Atrophy of the Uterus following Internal Application of Steam.

Baruch (*Centralblatt für Gynäkologie*, No. 5, 1898) reports a case which illustrates that the intrauterine application of steam is not altogether free from unhappy results. The patient, a young woman of twenty-seven, was treated for continuous hemorrhage. Menstruation returned four months after giving birth to a child and continued for eight weeks.

An intrauterine application of steam was made and the hemorrhage immediately arrested. But no subsequent menstrual periods occurred, and the woman passed through the usual symptoms attendant upon the menopause.

Ovarian extracts were then given for some time, but produced only abdominal pains, without reappearance of menstruation.

Two years later an examination was made and the uterus found to be small and hard. The external os was so obliterated by cicatricial tissue that a probe could not be passed, and the ovaries could only be indistinctly felt.

The Alexander Operation.

Simoer (*La Gynécologie*, Nos. 3 and 4, 1897), after discussing at length the Alexander operation, arrives at the following conclusions:

(1) The operation should only be performed in cases of movable uterus.

(2) In case of chronic retroflexion, curettement, amputation of the cervix, and colpo-perineorrhaphy should supplement Alexander's operation, since metritis and prolapse usually accompany the retrodisplacement.

(3) The extraperitoneal shortening of the round ligaments is preferable to all other methods of supporting the uterus in its normal position, as it is the most simple and the most rational.

(4) Lastly, statistics have shown subsequent labors were less liable to interference after this operation than after any other.

Chronic Gonorrheal Vaginitis and its Treatment.

O. Bodenstein (*Deutsche medicinische Wochenschrift*, October 14, 1897), in an article on the above subject, holds that the chief seat of chronic gonorrheal colpitis is in the posterior vaginal fornix, and that this locality, and not the urethra, is the primary seat of infection. Inasmuch as the urethra is almost invariably involved, most authors have considered it to be the starting-point of the process.

He quotes the following clinical data from Sänger for the establishment of the diagnosis of chronic gonorrheal infection:

(1) The history may reveal (*a*) gonorrheal ophthalmia of one or more children; (*b*) former ardor urinæ; (*c*) the presence of gonorrhea in the husband.

(2) Bartholin's gland may be diseased. A petechial purplish-red area about the orifice of the ducts is characteristic. The "gonorrheal macule," which may be present on both sides, with a reddening of the orifice of the urethra, is especially suggestive.

(3) When fistulæ, abscesses, and cysts of Bartholin's glands exists the evidence is conclusive.

(4) Condylomata upon the vulva.

(5) Dark-red spots upon a yellowish-white-streaked base about the vaginal orifice.

(6) Erosion of the external os of the cervix.

(7) In chronic gonorrhea local application of 50-per-cent. solution of chloride of zinc to the vaginal mucous membrane will bring granulæ into sharp relief.

(8) The uterus and appendages may be involved.

In treating the condition irrigations with strong solutions of bichloride and carbolic acid should be practised by the patient while in a recumbent position, with the bag at an elevation of from three to five feet. Special attention is called to the advantage of making use of the air in the douch-nozzle to distend and balloon out the vagina, as in this manner all the folds and irregularities in the mucous surface are removed, and the entire surface becomes accessible to the irrigating solution.

The paper, however, is directed chiefly to those cases in which irrigation treatment has proven unsuccessful. As in the disease in the male urethra, chronic gonorrheal vaginitis is a deep-seated process, and the micro-organisms are situated in the submucosa, so that they are but slightly affected by irrigation, especially as ordinarily practised.

Since in the treatment of chronic urethritis in the male large sounds are used, which distend the affected areas, mechanically bringing the gonococci nearer to the surface, and exciting increased secretion, which is controlled by local application, he reasons that an analogous line of treatment can be followed with advantage in the female.

He therefore employs, in chronic vaginitis, a firm tamponade in the upper half of the vagina which completely fills in the fornices. Glycerin is placed upon the tampon to soften and desquamate the abnormally thick, horny layer of epithelium, and to wash the gonococci nearer to the surface, which it does by establishing an exosmosis by virtue of its hygroscopic properties.

At the end of twenty-four hours the tampon is removed, the secretion, which is increased in amount, wiped out, and a local application made of a solution of nitrate of silver, varying in strength from 2 to 20 per cent.

The same course of treatment is then repeated and an early cure usually obtained, unless the seat of infection has extended into the tubes.

Etiology and Treatment of Cancer of the Uterus.

Baecker (*Archiv für Gynäkologie*, Band liii, Heft 1), from an analysis of 705 cases of cancer of the uterus, arrives at the following conclusions with reference to the etiology of the disease:

(1) The true origin of malignant disease of the uterus is as yet unknown, nor can it be referred to a specific micro-organism.

(2) The indirect cause is endometritis, generally of puerperal origin, which furnishes a suitable nidus for its development. This is shown by the fact that

cancer is common in women who have borne children, while it is comparatively rare in single and in sterile women, as well as in those who have had gonorrhea. Moreover, in nearly every case of cancer there is a chronic catarrh of the endometrium. Endometritis is the primary condition, malignant degeneration being secondary. Hence the practical importance of treating endometritis actively from the outset as a prophylactic measure.

In the treatment of carcinoma of the cervix total extirpation is always preferable to high amputation, because in leaving behind the body of the uterus the surgeon leaves a chronic endometritis which furnishes a favorable nidus for the development of malignant disease, even if the latter is not already present.

PATHOLOGY.

UNDER THE CHARGE OF

JOHN GUITÉRAS, M.D.,

ASSISTED BY

DAVID RIESMAN, M.D.

The Finer Nerve-Changes in Infants suffering from Gastro-Intestinal Disorders.

E. Müller and Manicatide (*Deutsche medicinische Wochenschrift*, March 3, 1898) have examined the cells in the central nervous system of seven infants under three months of age who had suffered from gastro-intestinal diseases. In five of the cases there had been more or less high fever, the other two had been afebrile. In all of the seven cases changes were found in the cells of the brain and of the spinal cord. The changes consisted, in the mildest type, in an irregular distribution of Nissl's bodies. Next in severity was the gradual solution of these, which affected the entire cell-body uniformly, or the parts about the nucleus, or the periphery. The solution is accompanied by a diminution in size and haziness of the Nissl bodies. Occasionally they are also enlarged and darker. In advanced cases they disappear entirely and a fine fibre net-work appears. Finally the cells lose their form, become indistinct, and the processes disappear. The nucleus and the nucleolus are often displaced. The latter is enlarged and the former is darker and uniformly stained. The presence or absence of fever seems to have no special influence. The changes just described belong to no special type and resemble those which have been found in experimental intoxications and infections.

Localization of Posttyphoidal Suppuration.

Takaki and Werner (*Zeitschrift für Hygiene und Infectionskrankheiten*, 1898, Vol. xxvii, Heft 1, p. 31) report a case of suppuration of Bartholin's glands in a case of convalescent typhoid fever, twenty-five days after the temperature had reached normal. In the pus a pure culture of the typhoid bacillus was

found, and the authors think that their case strengthens the view—now generally accepted—that the typhoid bacillus can produce, unaided, suppurative inflammation; only, however, during convalescence after the system is immune to the general action of the micro-organism. Regarding the portal of infection in their case, they think it may have been local, although the possibility of hematogenous infection is not deniable.

Researches on the Agglutinating Substance.

Nicolle (*Annales de l'Institut Pasteur*, March 25, 1898) has made some interesting investigations, chiefly a repetition and an amplification of those of Kraus, by which he has shown that the agglutinating substance (or agglutinable substance) is contained not alone in the bodies of the bacteria (typhoid, colon, Massaouah), but also in filtered cultures. We resume the author's general conclusions at length on account of their great interest. The bodies of certain micro-organisms (*e.g.*, those mentioned above) contain a special substance—an agglutinating or agglutinable substance—with the existence of which the phenomenon of agglutination is connected. The living micro-organisms and those killed by heat or by the addition of certain antiseptic substances, react practically in the same manner.

Filtered cultures treated with serum likewise give rise to the production of masses visible to the naked eye, and, microscopically, in every way identical with bacterial masses, with which they also share the reactions to stains. This phenomenon, for the production of which a sojourn in the incubator during fifteen or twenty hours is necessary, is constant when cultures of a certain age are employed; it is more rapid in the case of old cultures.

In order to demonstrate the agglutination more rapidly and more distinctly, one may add to the filtered liquid powdered talc, or better, a young culture of another micro-organism; the agglutination by means of the serum is then usually produced in three-quarters of an hour at room temperature.

The reactions are specific; only homologous serum produces them.

The bodies of the bacteria, washed in distilled water, when they come from a young culture, are rapidly agglutinated by the serum; they react only feebly and slowly when the culture is old.

Maceration-liquid from young cultures behaves like the fluid of filtered cultures.

These various reactions are of no practical value in the serodiagnosis of diseases; the employment of living, recent cultures is then preferable.

The presence of the agglutinating substance in the bodies of the bacteria is a constant fact, regardless of the conditions under which the culture is made or the nature of the medium employed; the agglutinating substance is an integral part of the micro-organism.

The agglutinating substance is very resistant to diverse physical agents, such as heat, cold, sunlight, high pressure, desiccation.

The addition of certain antiseptic substances to the cultures does not prevent the production of the phenomenon. The agglutinating substance is soluble in water, in alkaline or acid solutions, in absolute alcohol, and in ether.

The production of the agglutinating power in the serum of an animal infected with a micro-organism is dependent on the inoculation of the agglutinating substance. Causes which enfeeble or destroy it, prevent or retard the appearance of the agglutinating power in the serum of the animal. For the

production of an actively agglutinating power nothing equals the inoculation of living cultures.

At the beginning of its life the agglutinating principle is contained only in the body of the bacterium. It is only later, when the micro-organism becomes disintegrated, that the substance passes into the liquid. The nature of the agglutinating substance is hardly known as yet; Kraus found peptones and alkali-albumins in the precipitate produced by the serum from filtered cultures of the cholera-vibrio; but these observations are quite vague. The production of the agglutinating substance bears no relation to the virulence or toxicity of the cultures employed.

The agglutinating substance of the typhoid bacillus differs essentially from the typhoid toxin described by Chantemesse.

That which characterizes the agglutinating substance is the property of agglomerating in masses and agglomerating with itself, under the influence of active serum, the bodies which it contains or which are in suspension in the liquid in which they are found. (If to a mixture, in equal parts, of living typhoid and colon-bacilli one or the other homologous serum is added, all of the micro-organisms are agglutinated.) In the filtered bouillon the agglutinating substance which was in solution becomes visible; it seems as if the serum acted upon it so as to render it insoluble.

The agglutinating substance is contained in the outer layer of the micro-organism. If an agglutinable bacterium is inoculated on sterile bouillon containing homologous serum, the microbe always develops well. The only peculiarity which prevents this micro-organism from being identical with a culture on ordinary bouillon is that its external layer, under the influence of the active serum, swells and becomes apparent and adheres to the external layer of neighboring individuals. Nicolle therefore adopts Gruber's view that agglutination consists in the coagulation and coalescence of the outer layers of agglutinable micro-organisms under the influence of agglutinating serum. Agglutination is, then, a purely passive phenomenon. It has nothing in common with immunity, nor is it, properly speaking, a sign of infection, since micro-organisms totally deprived of their virulence or a filtered culture can produce it after inoculation. It is simply the sign of the passage into the body of the specific agglutinating substance.

Blastomycetes as Infective Agents in Malignant Tumors.

Mafucci and Sirleo (*Zeitschrift für Hygiene und Infectionskrankheiten*, 1898, Vol. xxvii, No. 1) are much less enthusiastic than other pathologists of the Italian school with regard to the part played by blastomycetes in the production of malignant tumors. They were never able to obtain cultures from carcinomas or sarcomas that had been removed from the living and were not ulcerated. Their conclusions may be epitomized as follows:

(1) *A priori* they consider malignant tumors infectious in origin.

(2) The infective agent is not sufficiently determined, either through biologic or experimental proofs.

(3) The search after the infectious agent of tumors should not be limited to one class of parasites.

(4) There are among the blastomycetes some with pathogenic properties.

(5) The processes produced by them do not resemble new growths of the nature of carcinoma or sarcoma.

(6) They produce septicemia, suppuration, and chronic inflammatory processes of the nature of granulomata.

(7) The blastomycetes so far found in human carcinomas have in animals predisposed to cancer, produced only ordinary inflammatory processes. (They do not consider that Sanfelice's experiments on dogs prove the power of blastomycetes to produce epithelial new growths.)

(8) The blastomycetes of carcinoma and sarcoma in man cannot always be demonstrated histologically or by culture.

(9) The blastomycetes are found especially in ulcerating malignant tumors in man.

(10) The distribution of the blastomycetes in tumors leads to the inference that an infection has been superadded.

(11) They do not exclude the possibility that blastomycetes can cause carcinoma and sarcoma, but do not think that any experimental proof exists.

(12) They do not deny that protozoa (psorozoa) can produce new growths, —this is proved by the papilloma caused by the coccidium,—but there is no experimental proof that they can cause carcinoma and sarcoma in animals susceptible to these diseases.

CORRESPONDENCE.

THE PREPARATION OF THE ARTIFICIAL NAUHEIM BATH.

To the Editors of the UNIVERSITY MEDICAL MAGAZINE:

GENTLEMEN,—In your edition of March, 1898, there is an article by Edward W. Smitheman on the use of the compressed carbonic acid gas in administering baths after the Schott method. I was about to present an article on the same subject; this writer having preceded me with his suggestion, I will simply give an outline of my idea. In some ways I believe it to be more practical than his. He suggests the employing of the carbonic acid gas directly from the cylinder into the tub, by means of pipes arranged in the bottom of the tub, in a continuous stream or streams. There are objections to this; the gas might be turned on so there would be an excess, which, on account of its density and toxic properties, might easily result disastrously to the patient. He also fails to mention the salines in solution, which I presume, however, he intends to use. I mention this, as they are a factor in all Dr. Schott's articles.

In all accounts of the springs of Nauheim is mentioned the fact that the pressure of the gas is equal to two atmospheres; consequently we have a guide as to the amount of gas we should try to incorporate

in the water in the artificially prepared baths. My suggestion is that we take one or more soda-fountains capable of holding forty gallons (the quantity for a bath), so arranged that they can be agitated; or an ordinary hot-water boiler of sufficient capacity might be employed if it were placed in a horizontal position. The contents could be agitated by rolling backward and forward, the saline constituents having been previously dissolved in the water. (Of course, the salts would have to be estimated differently than when the acid was added in the tub, anticipating a reaction and the freeing of the carbonic acid gas.) This boiler or fountain, after having been filled with water with the salts dissolved, can have an ordinary pressure gauge attached, and the carbonic acid gas from the cylinder then turned on until thirty pounds (two atmospheres) are shown by the gauge. After thoroughly agitating the boiler, the water will take up quite a volume of the gas. When the water becomes saturated and the gauge stands at thirty pounds, we have then but to allow the contents of the fountain to run into the tub, and we have the bath ready under the same conditions as at the springs of Nauheim, so far as the quantity of carbonic acid gas and salts are concerned, and no danger from an excess of gas in the atmosphere.

This is very much more accurate than where the chemical reaction occurs in the tub without pressure, or where the gas is simply turned on by means of pipes in the tub. Water takes up so much gas when under pressure, but would absorb or retain only a limited quantity when it is merely bubbling up through it.

The outfit is simple and easy to obtain. The salts could be dissolved in a small quantity of water, placed in the tank or boiler, and then the balance filled by a pipe from the ordinary tap or water power.

D. C. Moriarta.

Saratoga Springs, N. Y.

ANCIENT CONCEPTION OF THE PARASITIC ORIGIN OF DISEASE (GERM-INFECTION).

To the Editors of the University Medical Magazine:

Professor Alfred Gudeman has called my attention to a passage in Varro, De Re Rustica, Book I, Chapter xii, which was written 37 B.C., which contains an interesting anticipation of the theory that disease is due to infection by parasitic organisms, invisible to the naked eye,—then conceived as belonging to the animal kingdom. It is as follows:

"Advertendum etiam, si qua erunt loca palustria et propter eas-dem causas et quod arescunt et quod in iis crescunt animalia quædam minuta quæ non possunt oculi consequi et per aera intus in corpus, per os ac nares, perveniunt atque efficiunt difficiles morbos."

Yours truly,

CHARLES W. DULLES.

BOOK NOTICES.

A CLINICAL TEXT-BOOK OF SURGICAL DIAGNOSIS AND TREATMENT. For Practitioners and Students of Surgery and Medicine. By J. W. MACDONALD, M.D., Professor of the Practice of Surgery and of Clinical Surgery in Hamline University, Minneapolis, etc. Philadelphia: W. B. Saunders, 1898.

The author of this work has undertaken a new departure in surgical text-books,—namely, the consideration of diagnosis and treatment only. As stated in the preface, the practical part of the surgeon's work is almost limited to these two questions. It must be understood, of course, that the study of the principles of surgery, of surgical pathology, and of bacteriology are an essential foundation to the intelligent understanding of any description of diagnosis and treatment. This is freely admitted by the author, and the reader is expected to acquire these from any of the many excellent treatises on these subjects.

It is impossible to combine in one work every desirable feature. In the endeavor of the larger systematic works to present all of the important facts of any condition, many of the minor matters are apt to be overlooked, or it is taken for granted that the reader is familiar with them. It has been truthfully said that more mistakes in medicine are made from neglecting to make a careful examination than from ignorance. Dr. Macdonald has endeavored "to make the examination of each disease or injury systematic and comprehensive, and, when possible, directions are laid down as to the methods of examination." If this one object is accomplished, this will be a valuable addition to the library of the young practitioner.

The first chapter is devoted to the general examination of surgical patients. Chapter II deals with the diseases of the vascular system. Chapter III with the osseous system, etc. Thus the entire field is systematically covered.

An examination of the text leads us to say that the author has very satisfactorily presented the chief facts in the diagnosis and treatment of surgical affections. Such views as are accepted with practical unanimity have been plainly set forth, while any discussion of such matters as are still unsettled has been consistently abstained from.

Some minor criticisms occur to one, as must be expected. For example, the work of Allis, on "Dislocations of the Hip," is not alluded to. Bigelow's classical studies are referred to, and his methods of reduction advised. Practically, nothing of importance has been done in this line since Professor Bigelow's work appeared, until Allis showed conclusively that the methods heretofore employed in reducing dislocations of the hip are not only irrational but are sometimes attended with danger. Dr. Macdonald would, we think, do well to incorporate Dr. Allis's methods in the next edition of this work.

On page 157 several forms of hip-splints are illustrated. The names of Figs. 67 and 69 have been transposed. Fig. 67 should have been called Taylor's and Fig. 69 Thomas's. The same error occurs in the text.

We fail to find a reference to the surgical treatment of perforation of an ulcer in the course of typhoid fever, a subject now prominently before the profession.

In describing the treatment of enlargement of the prostate gland, the claims of double castration might have received rather more extended discussion. We agree with the author in the main, however, in the statement "all prostatectomies are unsatisfactory."

"Adanus," p. 579, probably refers to Adams.

No surgical work at the present time would be complete without a description of the use of the X-ray in surgery, and a chapter has been devoted to this subject.

The subjects of the eye, the ear, and the skin have wisely, we believe, been left to the special works on these subjects. Gynecology has been included, but the time seems to have almost, if not quite, arrived when this also should be treated in a separate volume.

The American Year-Book of Medicine and Surgery: Being a yearly digest of scientific progress and authoritative opinion in all branches of medicine and surgery, drawn from journals, monographs, and text-books of the leading American and foreign authors and investigators. Under the general editorial charge of George M. Gould, M.D. One volume; illustrated. Philadelphia: W. B. Saunders, 1898.

The prediction which was made in these pages on the first appearance of this year-book—that it would supply the long-felt need for a work presenting a complete summary of each year's medical progress in a convenient form—has been more than fulfilled in the unqualified praise which it has been accorded everywhere. Not only is the year's progress in the various departments of medicine and surgery presented in a concise and readable form, but in many instances the abstracts are accompanied by judicious criticisms from men of recognized authority. In the present issue we note a few changes in the corps of collaborators: the subjects heretofore ably edited by Professor Leffmann have, in consequence of his resignation, been rele-

gated to three departments, and placed under the charge of three distinguished specialists. These are: (1) That of physiologic chemistry, by Professor John J. Abel, of Johns Hopkins Hospital; (2) that of public hygiene and preventive medicine, by Dr. Samuel W. Abbott, secretary of the Massachusetts State Board of Health; (3) that of legal medicine, by Dr. Wyatt Johnston, of Montreal, Canada. The work abounds in excellent illustrations, among which are several colored plates, and the typography is of unusual excellence. We believe that the practitioner who desires to keep up to the times cannot afford to be without this work of reference.

The Administration of Drugs. A Guide for the Pharmaceutical Laboratory. By William Schleif, Ph.G., M.D., Instructor in Pharmacy in the University of Pennsylvania.

This book has been prepared as a guide for a course in practical laboratory pharmacy. It is, however, well adapted for study apart from the laboratory course.

Next to a knowledge of the drugs themselves, a thorough understanding of how to prescribe and administer the different preparations of the various medicinal substances is most important in the practice of medicine.

The various classes of preparations contained in the Pharmacopeia are described, and their method of preparation and uses detailed. Such practical suggestions are added as are important in their prescribing and use. The metric system is described, and a chapter is devoted to prescription writing, in which examples in both the usual and metric forms are given, and the grammatical construction of prescriptions is explained. A list of all of the nouns and adjectives employed in the Pharmacopeia is appended. This work will be of value to all students of medicine.

The Principles of Bacteriology; A Practical Manual for Students and Physicians. By A. C. Abbott, M.D., Professor of Hygiene and Director of the Laboratory of Hygiene, University of Pennsylvania. Fourth edition, enlarged and thoroughly revised. Philadelphia and New York: Lea Bros. & Co., 1897.

Our readers are doubtless familiar with this work from the reviews of the previous volumes in the Magazine, if not from a personal acquaintance with the book. The present edition has been thoroughly revised and brought up to the present time. In addition to such changes as recent investigations demanded, there have been added illustrated descriptions of the bacillus of bubonic plague, of the bacillus of influenza, and of the micrococcus of gonorrhea, as well as a number of new illustrations relating to descriptive passages in the text.

Students and practitioners of medicine will find this a reliable and satisfactory guide on the subject of which it treats.

Lippincott's Pocket Medical Dictionary. Edited by Ryland W. Greene, A.D., Editor of "Lippincott's Medical Dictionary." Philadelphia and London: J. B. Lippincott Company.

This is the latest and, we think, the best pocket medical dictionary. In addition to the pronunciation and definition of 20,000 terms, many tables have been included. It is of very convenient size and is printed in clear and attractive type. The definitions so far as we have observed are accurate and concise.

The Year-Book of Treatment for 1898. A Critical Review for Practitioners of Medicine and Surgery. Philadelphia: Lea Brothers & Co., 1898.

Anything more than an announcement of this Year-Book of Treatment seems superfluous. The reader will find in it a full and complete digest of the progress made in the field of therapeutics during the past year. The only changes in the staff of contributors are that Dr. G. A. Gibson, lecturer in the Edinburgh School of Medicine, has supplied a review of the advances in the treatment of diseases of the heart and circulation; and Dr. Herbert P. Hawkins, physician to St. Thomas's Hospital, has dealt with diseases of the stomach, intestines, and liver.

We heartily recommend this work to all who desire to keep fully abreast of the times in this important department of medicine.

Elementary Bandaging and Surgical Dressing, with Directions concerning the Immediate Treatment of Cases of Emergency. For the Use of Dressers and Nurses. By Walter Pye, F.R.C.S., late Surgeon to St. Mary's Hospital. Revised and in part rewritten by G. Bellingham Smith, F.R.C.S., Surgical Registrar, Guy's Hospital. Seventh edition. Philadelphia: W. B. Saunders, 1897.

This well-known manual, which now appears in its seventh edition, is one of the best of its class. It covers a wide range of subjects, which are discussed in a concise yet satisfactory manner. It cannot fail to interest and instruct students and nurses, for whom especially it was written.

ROYAL COLLEGE OF SURGEONS OF E.
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UNIVERSITY

MEDICAL MAGAZINE.

JUNE, 1898.

REMARKS ON THE OCCURRENCE OF GALL-STONES, WITH CASES.

By J. William White, M.D.,

PHILADELPHIA,

Professor of Clinical Surgery, University of Pennsylvania; Surgeon to the Hospital of the University of Pennsylvania and to the Philadelphia Hospital,

AND

Alfred C. Wood, M.D.,

PHILADELPHIA,

Instructor in Clinical Surgery, University of Pennsylvania; Assistant Surgeon to the Hospital of the University of Pennsylvania; Surgeon to the Philadelphia Hospital.

The frequency of the occurrence of gall-stones is a matter that has been commented upon by all modern writers. It is said that gall-stones are found in about 7 per cent. of all autopsies, in 25 per cent. of autopsies on persons above 60 years of age, and in 69 per cent. of all cases of primary carcinoma of the gall-bladder. It is well known that in a large proportion of these cases there were no symptoms during life that would have called attention to the biliary system. It is not the purpose of this paper to speak of this class. As the gall-stones apparently caused no inconvenience, their presence was unsuspected, and, of course, the question of treatment does not arise.

In other cases, however, the subject of gall-stones is less fortunate, and the individual is obliged to seek relief from symptoms that are distressing and frequently dangerous. It is this class that claims our attention.

Before finally dismissing the former, however, another word may be added. We read of autopsies at which the gall-bladder was found to contain many calculi, or was "filled with stones," or perhaps with one or a few concretions of larger size, or was shrunken and almost obliterated, and the statement is added that this condition was unsuspected during the life of the person. Some of these reports are made by the most careful clinicians, the accuracy of whose observations does not admit of doubt. It is inconceivable, however, that this should be the rule. In some cases the appendix veriformis shows, post mortem, unmistakable evidence of having been the seat of chronic inflammation, and yet no symptoms were complained of before death that would have led to a recognition of the condition. Surely no one would argue, at the present time, from this fact that inflammation of the appendix usually gives rise to no symptoms. All must have been impressed with the discrepancy between the frequency of appendicitis a decade ago and at the present time. There can be no doubt that the disease is more prevalent now than formerly, although it would be difficult to give satisfactory reasons for this change; but, in addition to this, its manifestations have been very closely studied in recent years, and its symptoms are now familiar to almost every member of our profession, however remote from the centres of medical teaching. Physicians are therefore constantly on the lookout for this disease, and the result is that it is now comparatively rarely overlooked. The two conditions are, of course, not identical, but the comparison is nevertheless useful.

We believe that when the diseases of the gall-bladder have been studied with the same thoroughness as have those of the appendix, the proportion of cases of gall-stones found post mortem that are said to have been free from symptoms during life will be very materially reduced. It will be necessary, in the future, to give more careful study to abdominal distress and pain, to locate its seat more accurately, and to determine its nature as nearly as possible. The vague pains that are at present more vaguely referred to the stomach may be, in many instances, the sign-post pointing to disturbed biliary function. The patients that come to the physician for treatment for gall-stones usually show a condition that is unmistakably a very old one. Even in those patients seized for the first time with biliary colic the stone has probably been weeks or months in forming. The desirability of making an earlier diagnosis in cholelithiasis being apparent, how shall it be done? Certain points are obvious. We would recommend first a more minute examination of the patient in cases of chronic digestive disturbances than is the general custom. The examination should include a study of the condition of the gall-bladder and liver as far

as can be determined by palpation and percussion, looking particularly for evidence of enlargement or tenderness of either; next, a careful inspection of the sclerotic for any tinge of jaundice, an inspection of the fecal evacuations to determine, if possible, whether the bile seems to be present in normal proportion, and an examination of the urine for biliary coloring matter. Finally, digestive disturbances and pain or distress in the region of the gall-bladder and liver that do not yield to medical treatment should be especially closely investigated.

The etiology of gall-stones is by no means settled. Osler states that calculi are formed in the gall-bladder; that evidence is wanting to show that they are formed within the liver ducts, except in very rare instances. On the other hand, Tait claims that the nuclei of gall-stones are formed in the streams of bile as they flow through the substance of the liver. They are carried, he says, as small groups of cholesterin crystals into the gall-bladder and increase in size by further deposits of cholesterin. The process he compares to the formation of the stones found in the urinary bladder.

Among the causes of gall-stones Naunyn mentions (1) degeneration of the lining membrane of the gall-bladder. The detritus contains lime salts which unite with bilirubin. On account of retention and concentration of bile the cholesterin crystallizes and becomes the nuclei of concretions. (2) Desquamative angiocholitis, which may result from retained bile. Bile salts are said to be powerful protoplasmic poisons. When the secretion becomes concentrated from absorption of the more fluid portions the epithelial membrane is apt to become affected. These views were also held by Dujardin-Beaumetz.

From the results of a series of experiments on animals, Dochmann is led to conclude that the formation of gall-stones depends not only upon increased viscidity of the bile but also upon a chemical alteration, probably an increase of calcium salts and a diminution of sodium salts. The longer the bile remains in the gall-bladder the greater this change.

The extensive researches of Hanot and Letienne have led them to divide biliary calculi into those of microbic and those of non-microbic origin. The fresh calculi of microbic origin are said to be irregular, vaguely round, raspberry-like, and apparently constituted of numerous small elementary concretions, many of which are found free in the bile. These stones are relatively soft, are not faceted, and resemble somewhat dried bread-crumbs. The old calculi of microbic origin correspond to the ordinary description of biliary concretions. The authors state that the bacillus coli communis is the organism almost invariably associated with gall-stones of microbic origin.

The supposed relation of sedentary habits, plethora, tight-lacing,

etc., to the formation of gall-stones has long been familiar to the profession. These factors act either by interfering with or by failing to excite a free and healthy action of the diaphragm, which is, perhaps, the most potent agent in forcing the bile along the bile-ducts.

William Hunter has recently summarized our present knowledge on this subject. He adds the weight of his authority to the views held by Naunyn,—namely, that in cholelithiasis we have to do with a local disease. Gall-stones are composed mainly of cholesterin and bilirubin calcium. It is now pretty conclusively shown that the former does not exist in the bile under normal conditions, but is a product of secretion or degeneration of the epithelium of mucous membranes, the seat of catarrhal inflammations. Both bilirubin and calcium are constituents of healthy bile. They seem to be precipitated in combination by the presence of albumin, which is formed in the process of disintegration of epithelium. The first step in the formation of gall-stones, therefore, appears to be catarrh of the bile-passages.

The two chief causes of this catarrh, according to Hunter, are infection and the elimination of irritant substances through the bile. The micro-organisms most commonly found in the gall-bladder are the bacillus coli communis, the bacillus typhosus, the staphylococcus, and the streptococcus. The first is by far the most frequently present, the typhoid bacillus stands next in frequency, while the last two are very rarely met with. The catarrh set up by the elimination of irritant products always affects primarily the intrahepatic bile-ducts, and may be entirely confined to them. This condition may result in the deposit of bilirubin calcium calculi, which either remain in the liver ducts or are carried on to the gall-bladder by the bile current.

Symptoms.—The introduction of skiagraphy in surgical practice led to the hope that its use might lead to a definite conclusion in doubtful cases, in which gall-stones were suspected to exist. The biliary concretions are penetrated by the X-rays to such an extent, however, that up to this time no aid has been obtained from this source. The symptoms caused by the presence of gall-stones depend upon the location of the latter in the biliary tract. That calculi may exist in the gall-bladder without giving any evidence of their presence is shown by the fact that they are not infrequently found at autopsies on subjects whose previous histories were known and who had been free from symptoms referable to the biliary system. In such cases the gall-bladder probably has not been the seat of an acute inflammation (cholecystitis), nor has a calculus become engaged in its duct, as either of these conditions would, in the vast majority of instances, give rise to a definite train of phenomena. In fact, it may be put down as a rule that calculi retained in the gall-bladder do not produce symp-

toms until there is some alteration in the latter from the normal condition.

If one of these stones becomes engaged in the cystic duct, however, symptoms usually develop at once. Acute obstruction of the cystic duct by a calculus gives rise to intense pain in the right hypochondriac region, which comes on more or less suddenly, depending upon the size of the concretion and therefore upon the degree of obstruction. The pain radiates towards the shoulder or the umbilicus, or both, but rarely appears below the level of the latter.

Vomiting is not uncommon, and the surface of the body becomes covered with a profuse perspiration. These attacks last a variable time, and subside suddenly if the stone passes into the duodenum or falls back into the gall-bladder. If the former occurs, and there was but a single stone present, the person will be permanently relieved, unless other concretions form, in which event other attacks of biliary colic are almost certain to occur. The stone may remain impacted for an indefinite period. Jaundice does not occur if the cystic duct alone is obstructed.

An attack of this kind usually continues for several hours, but may last from a few minutes to many days. The surgeon will rarely see the patient at this time, as the condition is properly considered to belong to the physician. The appropriate treatment consists in administering a full dose of morphine, a quarter to half a grain according to the degree of pain, hypodermically, either with or without atropine, $\frac{1}{150}$ to $\frac{1}{100}$ grain. In the most severe cases it may be proper to keep the patient mildly under the influence of ether while the pain is of agonizing intensity. The various other measures recommended —hot baths, sinapisms, or other external applications, laxatives, and alkaline waters—may be carried out, but are of more or less uncertain benefit in a very acute attack. If the paroxysm is unusually prolonged, extending over several days, the possibility of ulceration and perforation of the duct should be borne in mind, and in such a case it might become necessary to operate to anticipate this event and to afford relief from the pain.

Chronic obstruction of the bile-ducts by a stone, if detected, demands surgical interference. A calculus retained in the cystic duct may give rise to few symptoms. In many cases the gall-bladder becomes distended and may be felt through the abdominal wall. In a few instances it has reached very large proportions. Tait has described a case in which he removed nearly eleven pints of clear, gluey fluid. In long-standing obstruction the bile becomes entirely replaced by clear mucus. Jaundice is absent, as a rule.

Obstruction of the common duct gives rise to more pronounced

symptoms. Jaundice at some time, either periodical or permanent, is constant. Some degree of digestive disturbance is complained of, the stools are more or less clay-colored, and the urine is bile-stained, proportionate in degree to the completeness of the obstruction. Recurring paroxysms of pain are quite common, each paroxysm being followed by an increase in the depth of the jaundice. These periodical attacks have been explained by Fenger on the theory of a ball-valve action of floating choledochus stones. If the ducts become the seat of an infective inflammation (cholangitis) the symptoms are more pronounced, and there are added fever with chills and sweats, pain, and frequently tenderness in the region of the liver.

As has been observed already, the gall-bladder may contain a large number of stones without giving rise to any symptoms. On the other hand, the presence of calculi sets up a chronic inflammation in many cases, which results in the formation of thick, ropy mucus. As this can pass through the ducts only with difficulty, it may give rise to symptoms closely simulating those observed when a stone attempts to pass from the gall-bladder. Jaundice, according to Riedel, may occur from the same cause, a view held also by Robson. The former claims that the jaundice in two-fifths of the cases of cholelithiasis is due to catarrhal inflammation. The same symptoms may be caused by adhesions between the gall-bladder and other structures, as is shown by a case recorded by Kammerer. The patient was cured by breaking up the adhesions.

It will be clear, if we accept these views, that the presence of a stone impacted in the common or cystic duct cannot be determined invariably from the symptoms. In general, the pain and jaundice resulting from the passage of very thick mucus would be much less pronounced than when a calculus was in transit.

A catarrhal cholecystitis is described by Robson, which, he says, may have been set up either by a stone that has escaped, by chronic constipation and accumulation of feces in the hepatic flexure of the colon, which interferes with the regular emptying of the gall-bladder, or by the dependent position of the fundus of the viscus, which would act in the same manner. Such cases resemble the mild form of cholelithiasis, and if medicinal measures do not afford relief after a few weeks, an operation is to be advised, and if no stone be found, drainage of the gall-bladder will very likely effect a cure, as does drainage of the urinary bladder in certain cases of vesical inflammation. An early operation in such cases would, in many instances, save the patient more serious trouble at a later period.

Surgical Treatment.—There is still considerable diversity of opinion as to when surgical measures should be employed in chole-

lithiasis. The most recent text-book on medicine says on this subject: "The results of recent operations have been so uniformly good in uncomplicated cases that at present the physician is not justified in waiting for more than three or four serious attacks of bilious colic after he is satisfied that a gall-stone is lodged in the common duct. . . . Too long waiting not only endangers the structure of the liver and the health of the patient, but makes the operation itself much more difficult and less apt to be a success." (Wood and Fitz.) It is urged that care must be observed not to mistake attacks of biliary colic caused by the successive formation of calculi that probably pass at the time of the paroxysm for evidence of the continued presence of a single stone. Another recent author says: "Surgical procedures have of late been availed of even with a view to exploration, and if done by competent surgeons, with due antiseptic precautions, cannot be regarded as more dangerous than most abdominal sections, but, on the other hand, should not be done until the case has assumed some chronicity, or repeated attacks endanger the life of the patient." (Tyson.) Osler ("Practice of Medicine") gives the following indications for operation: (*a*) Repeated attacks of gall-stone colic, of great severity and danger; (*b*) the presence of a distended gall-bladder, associated with attacks of pain or with fever; (*c*) when a gall-stone is permanently lodged in the common duct, and presents the group of symptoms above described.

While gall-stones may exist in the gall-bladder without causing symptoms, and therefore probably without doing any harm, it is not true that the condition may be safely neglected after symptoms arise. We have before alluded to the fact that symptoms do not begin in cholelithiasis, probably, until a stone engages in the duct, or until the biliary passages become the seat of inflammation or of an infective process. In either case, if the condition continues unrelieved by the ordinary measures, an operation is to be recommended. It is irrational to wait until the patient becomes deeply jaundiced and worn out with pain and the accompanying cholemia or has become septic from an infected gall-bladder.

We believe it is conservative surgery to operate as soon as the presence of gall-stones in the biliary passages can be established, and in those doubtful cases in which symptoms that could be explained on the supposition of cholelithiasis remain after exhausting the other appropriate measures.

The presence of jaundice for a long period adds considerably to the gravity of any operation, as such patients bear shock poorly, and they seem particularly predisposed to infection and to hemorrhage.

The use of large doses of olive oil has been shown to be without

value as a rule. The observations in the earlier experiences are now known to have been fallacious, and yet occasionally, either as a result or as a coincidence, the administration of gill doses of sweet oil is followed by the expulsion of gall-stones, as in the following case:

Case I.—Dr. White saw in consultation with Dr. Pepper and Dr. Bournonville Mrs. ——, aged 50 years, with an unmistakable accumulation of calculi in the gall-bladder. Medicinal treatment had up to that time been without effect. A day for operation was fixed upon, but it was agreed that during the interval the patient should take gill doses of olive oil three or four times daily. The following day she passed a teacupful of calculi and her subjective symptoms disappeared. She remained well.

The treatment at the Carlsbad springs would doubtless be very efficacious as a prophylactic in those of full habit with a tendency to biliary lithiasis, but it is scarcely reasonable to suppose that the water can assist even in the slightest degree in removing a concretion that has already formed. The relief of symptoms so frequently reported doubtless comes from the laxative effect of the water which relieves congestion of the portal circulation, and doubtless also catarrhal conditions of the biliary passages.

Case II.—Dr. White was requested by Dr. Wilbur Klapp to see Mrs. K., aged 45 years, who gave the following history: In August, 1895, she awakened in the night with a severe pain in the epigastric region, which she thought was indigestion. She had eaten pea-nuts the day before. The pain lasted two or three hours. During this time a "lump" could be felt in the region of the gall-bladder. A few days after this she had a vomiting spell which she thought was a bilious attack. After this time she felt "heavy" all over. October 1, pains were felt over the heart; two days later shingles appeared on the left side of the chest. February 15 she went out for a drive in the afternoon and was taken with a "weak and fainting feeling." She felt better after her return, ate dinner, and retired at the usual time. Between twelve and two in the morning she awakened with a severe pain three inches above and a little outside of the anterior superior spine of the ilium; this was severe and constant; there was neither nausea nor vomiting. The pain did not go through to the back. There was very marked tenderness on pressure. Decubitus; dorsal, with knees flexed to relieve the pain.

The jolting of the carriage she believed precipitated the attack. The patient had suffered from constipation for six months before this time.

Diagnosis.—The symptoms at first suggested appendicitis, but later seemed to point to the gall-bladder.

Operation.—Longitudinal incision over the tumor. A mass of inflamed and adherent omentum presented. On going towards the region of the tumor with the finger recent adhesions were met with. The tumor was found to be the gall-bladder, distended with bile. The fluid was drawn off by means of a trocar after carefully protecting the peritoneal cavity in all directions by gauze pads. About four ounces were withdrawn, the last portion of which was distinctly purulent. On enlarging the opening and inserting the finger in the gall-bladder a stone the size of a large nutmeg was detected and extracted. Other smaller stones were felt, but were too little to be removed with forceps, and were consequently scooped out.

The margins of the incision in the gall-bladder were sewn to the edges of the peritoneum with silk sutures, the ends of which were left long and brought out of the wound. The balance of the parietal wound was closed with silkworm sutures, including all the layers. The gall-bladder was drained by a rubber tube and a strip of gauze; the under surface and region of the ducts were drained by gauze alone.

The wound was dressed daily. Bile escaped externally at first, but gradually became less, and ceased altogether at the end of the fourth week.

At the end of the second week the sutures uniting the opening in the gall-bladder to the peritoneum were attached to an elastic ligature, which was put under moderate tension by tying over a glass rod, the object being to facilitate the cutting through of the sutures, as they were so deep that they could not be removed by cutting with scissors in the ordinary manner, and they had shown very little tendency to loosen spontaneously.

The patient left the hospital on the forty-fourth day, having been entirely relieved of her former symptoms since the operation. The wound had healed firmly in the deeper portions, and but a very small and superficial area, where the sutures had come out, remained to cicatrize.

Case III.—J. R., male, aged 55 years, was referred to Dr. White by Dr. Clark, of Trenton, N. J. The patient's maternal grandfather died at 35 years of age of cancer of the cheek. His father died of dropsy at the age of 74; he had been the subject of repeated attacks of jaundice since his 65th year. One sister died of consumption. Family history otherwise negative. Mr. R. has always been exceedingly temperate and had enjoyed good health. Five years ago, while travelling, he was seized very suddenly with an attack of intense pain in the region of the gall-bladder, lasting about three hours, and finally relieved by the vomiting of bitter material. He was not jaundiced. Minor attacks have followed at intervals of about every six months.

After a three weeks' spell of the grippe he was taken ill, with pain in the lower part of the abdomen, which gradually spread upward until it centred in the epigastrium, when vomiting set in. A few days since he had a severe spell simulating hepatic colic; he has been jaundiced for the last week.

Diagnosis.—Gall-stone impacted. The urine contained a large amount of bile pigment.

Operation.—The incision and the subsequent steps of the operation were the same as those described in the report of the preceding case. Twenty calculi were found and removed. The largest was half an inch in diameter. There were also numerous fine particles too small to collect. Ten days after the operation no evidence of bile in the urine could be detected.

The patient left the hospital in the beginning of the sixth week after operation with the wound completely healed.

Case IV.—D. G., physician, aged 35 years. The patient's mother has suffered from periodic attacks of pain like those produced by gall-stone. He has had all the usual diseases of childhood, but has never been seriously ill until the present trouble began. Four years ago he had his first attack of hepatic colic, which he himself diagnosed as simple intestinal colic. There was no jaundice. The second attack appeared two months later, the third two weeks after this, and a fourth after an additional interval of two or three weeks. Then nearly a year elapsed when a second series of attacks appeared, the interval between the individual attacks being between two and three weeks. During the next year and up to June, 1895, there were six or eight repetitions. In June, 1895, he remained in bed for ten days, certainly twenty to twenty-five attacks appearing in this time. Before this the pain and tenderness had been precisely in the region of the gall-bladder, but were now in the epigastrium. The patient was ordered a restricted diet, olive oil, sodium salicylate, and fluid extract of wild yam. He was free from attacks during this summer. He was ordered to sea again, where he found it impossible to continue the diet that had been prescribed, and three days after reporting on board he had a severe attack. Since then the attacks have recurred every month or two, a very severe one appearing in February. There has never been any jaundice.

Diagnosis.—Gall-stones.

Operation.—Cholecystostomy; the technique of the operation was identical with that already described. One hundred and sixty-five calculi were removed, besides innumerable particles too small to count. The largest calculi measured one-fourth of an inch in diameter.

The patient left the hospital in the sixth week with the wound entirely healed.

A letter received two months afterwards states that the wound reopened and a slight discharge followed. One mild attack of pain is also reported.

Case V.—Mrs. S., aged 47 years, white, was referred to Dr. White by Dr. Reese, of Renovo, Pa. She gave the following history: Her mother died of tuberculosis. There is no tendency to any particular diseases in the family. The patient had had the usual diseases of childhood. She had typhoid fever twenty years ago and two attacks of la grippe four and three years ago respectively.

She complained of cramp-like pains in the abdomen, off and on, for the past seven or eight years. There was no jaundice during or following these attacks. Three months ago she began to have more severe pains, felt first in the epigastrium and working upward and downward. Pain was also felt in the dorsal and lumbar regions of the back and between the scapulæ. These attacks came daily, generally in the evening, and were accompanied by jaundice. She did not examine the stools, and therefore it is not known whether any stones were passed or not. For the past two weeks she has had no pain at all.

Urinary examination: specific gravity, 1028; acid; amber color; large quantity of mucus; no albumin; no sugar; no casts; no pus; no blood.

Diagnosis.—Gall-stones.

Operation.—Cholecystostomy by the method already described. A calculus about the size of a cherry, very dark in color, was removed. The gall-bladder was very thick from chronic inflammation.

In this case the gall-bladder was united to the peritoneal incision by catgut sutures, which were cut short. The wound had entirely healed at the end of five weeks, and the patient left the hospital a week later in excellent health.

Case VI.—Mrs. W., aged 44 years, was referred to Dr. White by Dr. Benner, of Sellersville, Pa. Mrs. W. had three severe attacks of gall-stone colic, the first one about five months and the last about three weeks before coming under observation. The attacks came on gradually and lasted about twenty-four hours; they were followed by vomiting. The pain was described to have been of a twisting character, shooting around the right side of the chest to the front in the right hypochondriac region. The patient noted that a yellow tinge of the skin appeared a day or two before an attack and persisted for some time afterwards.

Examination revealed a tumor in the gall-bladder region; there was moderate tenderness on pressure.

Diagnosis.—Gall-stones; obstruction of the cystic duct.

Operation.—Cholecystostomy was performed and 493 calculi of various sizes were removed. Convalescence was rapid. The wound had entirely healed in the fourth week. The patient left the hospital in the fifth week. She has since enjoyed excellent health.

Case VII.—Mrs. H., aged 44 years; married twenty-three years. Eighth parturition. Menstrual history: Began at 16; duration four to six days; at times painful; usually regular, but absent for the past year. General appearance: The patient is very spare, deeply jaundiced, and looks quite ill. Weight eighty-eight and a half pounds. Headaches over entire head; cannot sleep without hypnotics. She complains of pain on the right side, below the ribs, which at times extends down to the thigh. There is also pain in the back, transmitted up into the chest. There is frequent micturition, four times at night, without pain.

In the summer of 1895 she had a persistent diarrhea lasting until December, 1895, when she first noticed a lump in the right side, just under the edge of the ribs. A dull pain was felt at the same time. The tumor gradually increased in size; there was no marked tenderness. Appetite and strength gradually failed. Jaundice appeared three weeks ago. The stools have been light in color for the same length of time. Pain had been severe enough to require morphine.

On admission to the University Hospital the patient was intensely jaundiced. A tumor in the region of the gall-bladder could be felt readily, undoubtedly the enlarged gall-bladder, due to obstruction of the common duct. There was a moderate degree of tenderness. There had been no fatty stools, at least not distinctly so.

There had been no paroxysmal attacks of pain; jaundice appeared late in the history of the disease. There was no history of gall-stones being passed in the stools.

Urine: Color, yellowish-red; clear; sediment, flocculent, slight; reaction, alkaline; specific gravity, 1020; albumin, none; sugar, none. Microscopic examination: A few squamous cells. Well-defined reaction of bile-coloring matter. Gynecological examination: Laceration of the perineum with loss of support; bilateral laceration of the cervix; uterus retroverted, first degree (?); thickening of left broad ligament.

Diagnosis.—Distended gall-bladder; obstruction of common duct; probably malignant.

Operation.—Cholecystostomy; incision three inches long, parallel with median line, directly over the tumor, beginning at the lower edge of the ribs. The gall-bladder was distended with a turbid, mucous fluid, which was removed by means of a trocar and canula. One gall-stone the size of a chestnut, round and smooth, was removed. A tumor was found which involved the common duct and surrounding structures.

The patient did not rally well from the operation and died on the third day.

The autopsy showed the common duct surrounded by a tumor mass, the size of a walnut, about three and a half centimetres from the papilla. This growth was connected with the head of the pancreas, and protruded into the lumen of the dilated duct, where it presented a papillomatous appearance. It was undoubtedly malignant.

Case VIII.—Mrs. B., aged 28 years, was referred to Dr. White by Dr. William J. Middleton, of Steelton, Pa. She had suffered with attacks of cramps at irregular and increasingly frequent intervals for seven or eight years. About March, 1894, she was six months pregnant, and had a very severe attack of colic, which lasted nearly three days. Her health began to fail seriously early in 1895, when the attacks began to be accompanied by jaundice.

About four months before operation the attacks began to be ushered in with a chill or recurring rigors and very high temperature, several times reaching 105° F.

For two or three weeks before she went to the hospital she had severe chills almost daily, sometimes two in a day. Jaundice was profound and her strength was being rapidly exhausted.

A tumor, apparently the distended gall-bladder, could be detected under the right costal border.

Diagnosis.—Gall-stones; obstruction of the common bile-duct.

Operation.—Choledocholithotomy. The usual incision was made and the gall-bladder exposed without difficulty. As it was distended a trocar was introduced and the contents withdrawn. The opening was then enlarged and a finger introduced. A calculus was found engaged in the orifice of the cystic duct. This was readily removed. It measured five-eighths by three-fourths of an inch. With the finger remaining *in situ* as a guide, the index and middle fingers of the right hand were passed along the course of the ducts, and a large stone in the common duct was detected. It was quite impossible to move it in any direction. The duct was therefore incised and the removal of the stone readily accomplished. The calculus was almost cylindrical in shape. The exterior presented the "mulberry" appearance. Its length was one inch and its diameter nearly three-fourths of an inch. The depth of the incision in the duct and the adhesions to neighboring structures precluded any attempt to suture the wound, which was therefore left open. Gauze packing was so placed as to guide any discharge from this point to the surface of the abdominal wound, a drainage-tube was introduced in the gall-bladder and the abdominal wound closed as much as possible without interfering with the proper drainage. The convalescence was very satisfactory and without in-

cident. The patient left the hospital with the biliary fistula still open. A letter from Dr. Middleton states that the fistula closed and that Mrs. B. is in excellent health.

Case IX.—Miss H., 48 years of age, white, born in Pennsylvania, was referred to Dr. White by Dr. Aschenfelder, of Pottstown, Pa. She was admitted to the University Hospital June 7, 1897.

The patient's father died of cardiac disease associated with dropsy, aged 74 years, her mother also died of heart-disease at 75 years of age. One aunt died from some liver trouble. One sister died of brain tumor, associated with blindness and mental weakness, aged 39 years. There was no tubercular tendency, but a rheumatic history was elicited. She had scarlet fever during early childhood.

About eight years ago she began to be troubled with attacks of severe, colicky, sickening pain, starting in the right side of the back and running down and through to the right side of the abdomen below the ribs; this was associated with belching of wind and bilious vomiting; the pain usually lasted twenty to thirty minutes, and was generally relieved by vomiting, but sometimes morphine was required. These attacks recurred at irregular intervals,—once in three weeks and again not for several months, but gradually increased in frequency and severity up to April, 1895, since which time she has had but one attack, which was in April last.

In April, 1895, she had an attack of neuralgic pain all over the body,—not being referred to any particular part; this was followed by severe and almost constant bilious vomiting, which lasted for at least two days, when she complained of a constant dragging pain on the right side of the abdomen. On examination a hard lump, about the size of a small hen's egg, very sensitive to pressure and seemingly attached to the surrounding structures, was found in the right umbilical region. She also became excessively jaundiced at this time, which condition has persisted to a mild degree up to the present time; there have been occasional exacerbations of the jaundice unassociated with other symptoms. She left her bed in a couple of weeks and her health rapidly improved during the following two years. The lump seemed to vary in size during this time, sometimes almost disappearing and at other times becoming as large as a hen's egg. She suffered frequently from attacks of sharp pain radiating out from it through the abdomen, which, however, were rarely severe enough to cause her to go to bed. She has had indefinite pains in the left side of the abdomen running down towards the groin during the past eighteen months. She has also had some pain in the region of the bladder during urination for some months, but the pain is relieved on the completion of the act, and she has had no other vesical trouble.

Last April she contracted a heavy cold in the throat and chest, associated with much cough, since which time the lump in the abdomen has slowly increased in size, and the attacks of pain have become more frequent and severe.

On inspection a rounded prominence was seen below and to the right side of the umbilicus; it appeared to be fixed. The tumor was felt through the abdominal wall and was about four inches in diameter. The upper border was on a line with the upper border of the umbilicus, and the left margin extended one inch to the left of the median line. The tumor was soft and uniform to the touch. There was an area of resonance between the border of the liver and tumor.

Diagnosis.—Gall-stones with obstruction of the common duct and distention of the gall-bladder.

Operation.—A vertical incision was made over the prominence and was carried down layer by layer. The gall-bladder was adherent to the abdominal wall and was opened without invading the peritoneal cavity. About a pint of purulent fluid was evacuated. Three calculi were extracted, each about one inch in diameter and slightly faceted. There were innumerable very small calculi which were removed by irrigating with sterile water. The incision was closed with silkworm-gut sutures, except at the point of exit of the tube. A large rubber tube was introduced in the gall-bladder. The wound was dressed daily and the gall-bladder irrigated with sterile water. The tube was removed at the end of a week, when gauze packing was substituted. The patient made an uneventful recovery; the biliary fistula remained open some weeks, but closed spontaneously.

At present writing (April 19, 1898) the patient still has a movable insensitive swelling in the gall-bladder region. This at times becomes larger and is then painful. Obliteration of the gall-bladder cavity is evidently incomplete. Communication with the intestine through the cystic duct is obviously very imperfect.

Further operation—on the same lines as the previous one—is now under consideration.

Operation.—The operation that has been done in all of these cases, except Case VIII, is that known as cholecystostomy, in contradistinction to cholecystotomy, although the two terms are sometimes improperly used synonymously.

Hans Kehr, who has had a very large experience in gall-stone surgery, speaks of cholecystostomy in one stage as the normal operation. It is the only one that will be described in detail. Many of the steps are the same in each of the operations mentioned, the difference relating to slight modifications of technique after the parts have been exposed.

Incision.—Billroth advised the oblique incision, parallel to the costal margin, and stated that hernia was less apt to follow this than the vertical incision. According to Czerny, the best incision is a rectangular one, the vertical limb being in the linea alba and the horizontal limb being directly outward on the right side on a level with the umbilicus. Courvoisier and Morison prefer a transverse incision, which, according to the latter, gives free access with the least danger of hernia.

The incision which Dr. White invariably employs is vertical, and three or more inches in length, according to the conditions present. It is placed over the most prominent part of the tumor, if the gall-bladder can be seen or felt. In other cases it is made through the right rectus muscle. This incision has the advantage of not dividing any muscular fibres, and it leaves the strongest possible cicatrix after the wound has healed.

The peritoneal cavity being opened the gall-bladder will present if enlarged; when it does not, it is to be sought for. If there are no adhesions, it will readily be located in its groove under the anterior margin of the liver. Sometimes the colon or stomach is spread over the gall-bladder and fixed by adhesions. In such a case it is necessary to separate the adhesions with great care, tying any that may bleed, until it is possible to palpate the gall-bladder and its ducts. Too much pressure should not be made on a distended gall-bladder, as it might be possible thus to force a small calculus into the duct or to cause one already engaged to pass farther on and out of easy reach, thus complicating the operation. The next step should be to isolate the field of operation from the peritoneal cavity by the proper distribution of gauze pads. Having done this, a suitable trocar and canula are introduced into the gall-bladder, if the latter is sufficiently distended, and the bile conducted into a vessel; if any flows out around the canula, it is quickly sponged away to avoid soiling the protecting pads as far as possible. Every effort should be made to prevent the bile from coming in contact with the peritoneal cavity.

The opening in the gall-bladder, made by the trocar, is enlarged by the knife sufficiently to admit a finger, as this is the very best probe that can be used. The finger will detect any calculi in the gall-bladder or in the orifice of the cystic duct, and, after these have been removed by the scoop or forceps, will serve as a guide for the fingers of the opposite hand in examining for the presence of calculi in the ducts. If the concretion be found in the latter, an effort may be made to force it backward into the gall-bladder. If this is impossible on account of the size of the stone, an attempt may be made to crush it between the finger and thumb or by means of suitably padded forceps (chole-

lithotrity), when it may be dislodged; or if of soft consistence, by moulding it into appropriate shape the same object may be accomplished. It is probable that any amount of force that could be exerted by the finger and thumb may be safely employed, but in using instrumental compression great care should be observed not to contuse the delicate walls of the ducts so much as to cause sloughing subsequently. In a few cases a stone has been broken up by a needle passed through the wall of the duct (needling). This procedure cannot be recommended except in such rare cases as cannot be treated by other means. In all of the methods of disintegration there is a danger of leaving one or more fragments which will either keep up the symptoms for which the operation was performed or will form nuclei for new concretions. Fenger calls attention to the danger, in the manipulations intended to dislodge stones in the ducts, of displacing them in the hepatic duct, where they might elude detection, in which case the operation would of course fail in its purpose.

Having disposed of all the calculi that can be felt, the next step is the disposition of the gall-bladder. As already indicated, the best procedure seems to be to sew the opening to the abdominal incision. It is this method that was employed in all of the cases of this series. It is certainly the safest plan, and undoubtedly will give the best results in the majority of cases. In fixing the opening in the gall-bladder to the abdominal wound, the visceral and parietal layers of the peritoneum should be neatly adjusted. This will prevent leakage of bile into the abdominal cavity and will also insure the healing of the fistula if the ducts are clear. To suture the gall-bladder incision to the skin of the parietal incision is to invite a permanent biliary fistula. The abdominal wound is then closed layer by layer if there is no necessity for terminating the operation more speedily, or by sutures, including all the structures, if the patient's condition makes haste imperative.

Drainage.—The gall-bladder should be drained by a large rubber tube secured so as to prevent it from disappearing in the wound. Terrier suggests that the discharge from the gall-bladder be tested bacteriologically, and that the drainage be continued until germs have nearly or entirely disappeared. If there has been any operation on the ducts, or if thought desirable for other reasons, a Mikulicz drain may be introduced beneath the gall-bladder. It may usually be removed in from two to four days.

After-Treatment.—The gall-bladder is irrigated daily through the drainage-tube with sterile water. The dressings are usually saturated with bile and mucus during the first few days or weeks, as the flow of bile through the ducts is in many cases slow to become re-

established. As soon as there is evidence of the bile passing in the natural direction, as shown by the diminution of the quantity discharged externally and by the return of the natural color in the motions, the drainage-tube is removed and the fistula allowed to close. If the healing is unduly slow, the wound is gently held together with isinglass plaster.

When the patient gets out of bed a bandage or other support should be worn for several months in order to diminish the slight risk of a hernia. The wound is situated so high in the abdominal wall, and if it healed firmly there would be very slight risk of a hernia, but as persons are occasionally exposed to sudden and unexpected strains, it is a wise precaution to have the support given by a bandage.

The cases here reported all made satisfactory recoveries except one, and, as will be seen, this was a case of malignant disease of the head of the pancreas, the patient being in an advanced state of cachexia rather than icterus. The fistulæ healed promptly, excepting in one case where the healing was delayed, but was finally complete and permanent. There is probably some obstruction of the ducts remaining.

Cholecystotomy or "Ideal" Cholecystotomy.—The term cholecystotomy is here used in its restricted sense and not as synonymous with nor as including cholecystostomy, as is very frequently done by writers. In this operation the gall-bladder is incised, and after the contents have been removed is sutured, dropped back into the abdominal cavity, and the parietal wound closed. The advantages claimed for this operation are that the patient is at once restored to a normal condition, and that the danger of a biliary fistula is obviated.

The disadvantages of this operation are well described by Jacobson ("The Operations of Surgery"). He says this operation has two grave objections: "(1) It is not so safe as cholecystostomy owing to the risk of leakage, if the walls of the gall-bladder are at all inflamed and softened. This is just an instance of an operation where we hear of the successful but never of the unsuccessful cases. (2) It is very difficult to be certain that all of the ducts are patent. If a stone be left behind, suturing and returning the gall-bladder will give rise in the immediate future to dangerous tension on the sutures by the backflow of the bile, while it prevents, later on, any attempts being renewed through the open gall-bladder."

Although cases will doubtless be met with occasionally, such as a contracted gall-bladder, that has been opened and cannot be brought to the abdominal wound, where this operation will be appropriate it can have but a limited field of usefulness, for the reasons mentioned. In all cases in which the contents of the gall-bladder contains micro-

organisms drainage should be employed, and this will be in the large proportion.

Cholecystectomy.—It has been recommended to perform this operation for the relief of gall-stones upon the theory that the stones were formed in the gall-bladder, and that the removal of the latter would therefore effect a radical cure. It is certain, however, that in rare cases at least calculi are formed in the liver passages, and, moreover, the operation would be manifestly improper in cases of obstruction of the common duct, a fact that cannot always be determined. There are conditions which demand the removal of the gall-bladder, but the operation should be carefully restricted to the cases in which the indications are clear. Cholecystectomy may be indicated if the condition of the gall-bladder is such that its physiological function cannot be restored, as in tumor and empyema.

Cholecystenterostomy is indicated in those cases of impacted calculi in which it is impossible to remove them by the usual means, or when the patient is too ill to withstand the shock of a prolonged operation. It should be employed, however, only when necessary, inasmuch as it is not a curative operation, and it is doubtful if the health is as good with this abnormality. Besides, infection of the gall-bladder is very apt to occur from the large intestinal opening.

Jacobson says this operation will be less frequently employed in the future than it has been in the past. He cites the case of Ricard (*Bulletin de la Société de Chirurgie*, 1894, Tome xx, p. 572). The patient died fifty-three days after cholecystenterostomy, although appearing to do well at first. The autopsy showed that death was due to infection of the biliary passages from the intestine, numerous abscesses from ascending infection being present.

Cholecystenterostomy is to be preferred to cholecystocolostomy.

John Duncan claims that as patients with biliary fistulæ enjoy good health, there are few cases in which it would be justifiable to form a new route for the bile into the bowel.

Rosenstirn reports a fatal case in which the union between the gall-bladder and duodenum failed to hold. The patient survived several weeks.

Another fatal case is reported by Macdonald, of Toronto. A cholecystoduodenostomy was performed by means of Murphy's button. Death occurred on the eighth day from peritonitis. The contents of the gall-bladder and intestine had escaped in the peritoneal cavity.

TWO MODIFICATIONS IN THE TECHNIQUE OF EMMET'S OPERATION FOR LACERATED PERINEUM.

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Some seven or eight years ago I adopted two modifications in the technique of the Emmet operation for laceration of the pelvic floor, which, in my opinion, improve the operation materially. These procedures have been tested literally in hundreds of cases, and my original good opinion of them has been confirmed.

The first modification consists in the manner of denudation, which enables me to denude the most extensive sulci tears reaching more than two inches up the posterior vaginal wall, in three minutes or less. The denudation, moreover, is much neater, more surely symmetrical in outline, and precludes the possibility of leaving islets of mucous membrane behind. The labia are seized with the writer's modified bullet-forceps about a quarter or half an inch above the level of the lower border of the original uninjured vaginal entrance, the crest of the rectocele is marked and held in the usual manner with a suture of silkworm gut. The point of a small sharp-pointed ophthalmological scissors is inserted under the mucous membrane just within the point fixed by the bullet-forceps. The membrane is then slit with one straight-running cut without removing the scissors' point from under the mucous membrane up to the apex of the sulcus tear. The scissors' point is then inserted under the mucous membrane just within and to one side of the point fixed on the crest of the rectocele by the silkworm-gut suture, and is run up under the mucous membrane as before till it meets the top of the first incision. (Fig. 1.) Thus a triangular flap is cut corresponding in shape and size exactly to the superficial margins of the original sulcus tear. The point of this triangular piece of mucous membrane is seized with a rat-toothed forceps, is pulled down and out, and numerous rapid snips with the scissors dissect the whole flap loose in one piece. This flap is held firmly by its point and is cut off at its base. (Fig. 2.) Thus one side is denuded in a few seconds, no matter how high up the tear may extend. The other side is denuded in the same manner, leaving a denudation of the shape shown in Fig. 3. Finally, the point of mucous membrane just under the fixation stitch in the crest of the rectocele is seized with a rat-

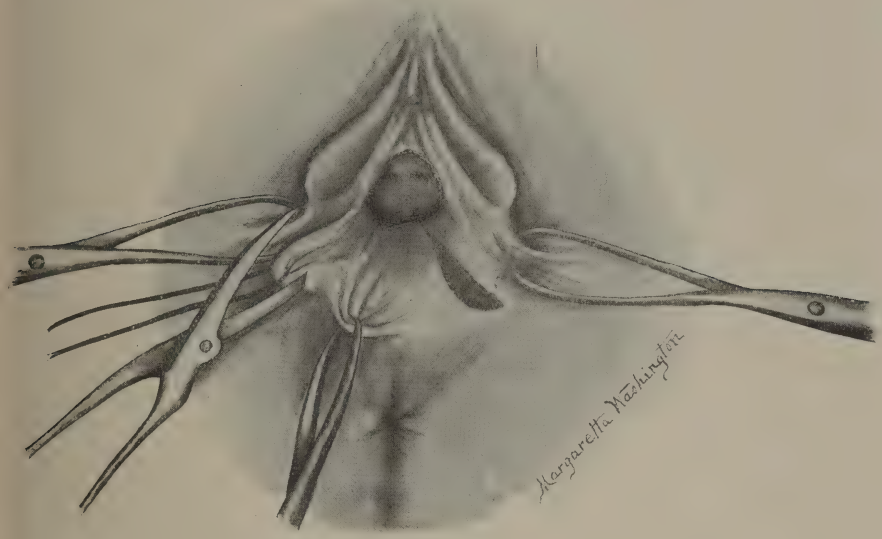


FIG. 1.—Cutting a triangular flap in the left vaginal sulcus.

FIG. 2.—Cutting off the triangular flap at its base.

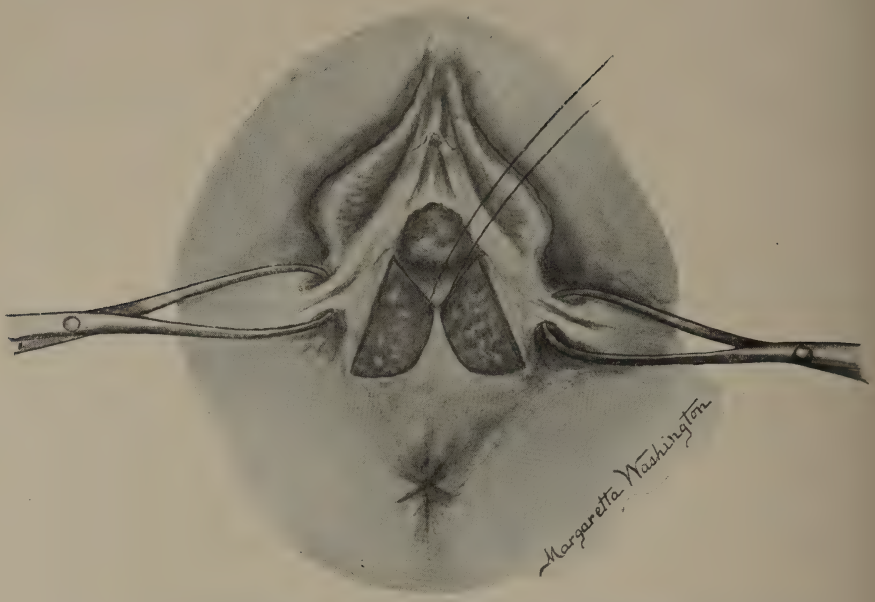


FIG. 3.—Both sulci denuded: a triangular flap of mucous membrane remains below the crest of the rectocele.

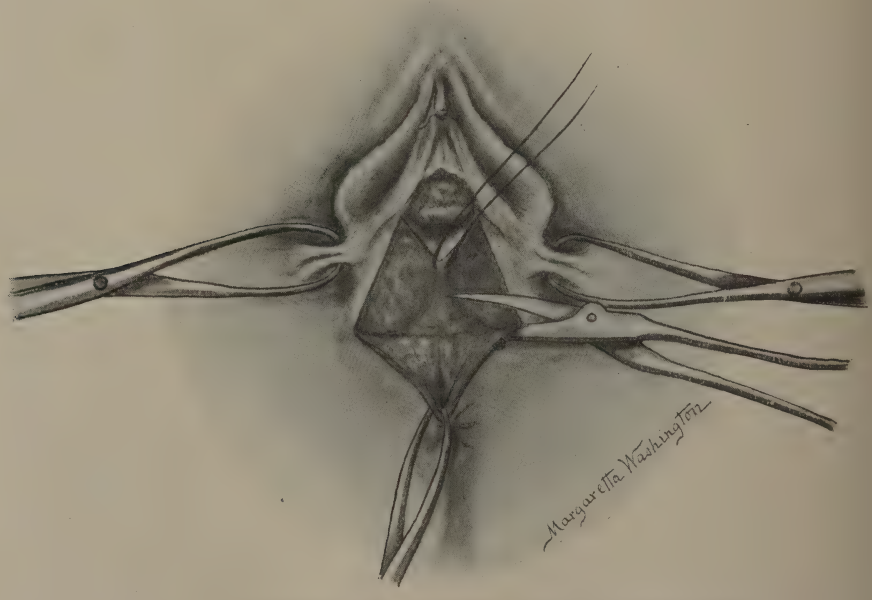


FIG. 4.—The flap shown in Fig. 3 dissected loose and cut off at its base.

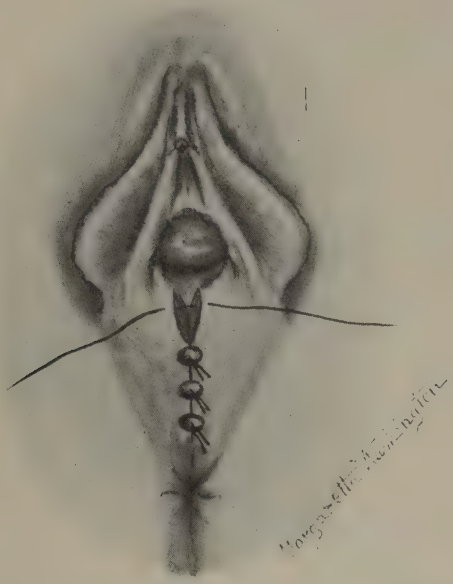
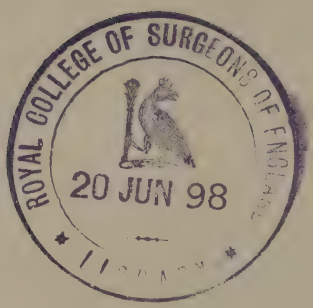


FIG. 5.—A denuded area left above the crown stitch.

FIG. 6.—The denuded area shown in Fig. 5 brought together with the topmost stitch. The labia remain in apposition, and there is no projecting tongue of the posterior column of the vagina between them.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toothed forceps, the third triangular flap of mucous membrane is dissected loose, and is cut off at its base as was done with the sulci flaps. (Fig. 4.)

The second modification is, to my mind, more important, for it obviates the only fault in the Emmet operation,—namely, a gaping vulvar orifice and a protrusion of the tip of the posterior column of the vagina between the labia majora. This modification consists in placing what might be called a fourchette stitch above the crown stitch. For this purpose, it may be remembered, the denudation is carried about half an inch above the level of the original posterior vaginal floor. The crown stitch is placed at this level, leaving above it a denuded area about half an inch long, and of the same breadth, converging, however, to a point on each side above. (Fig. 5.) When this stitch is shotted (Fig. 6) the labia majora lie closely together, the ring of the hymeneal remnants is joined together about half an inch within the labia; there is no gaping of the vulva and no protrusion of a tongue of the posterior vaginal column, as there is often in the typical Emmet's operation.

Kryofine.

Haas and Morrison (*New York Medical Journal*, March 26, 1898) state that they have used kryofine for four months in the wards of Mount Sinai Hospital, and have found it to be an antipyretic of excellent qualities. It reduces temperature gradually, attaining its maximum effect in from three to six hours. As an analgesic it was found of great service in headache from whatever cause. It also proved effectual in a number of cases of neuritis, particularly sciatica. As an hypnotic in insomnia, unaccompanied by severe pain, it proved of undoubted value.

Kryofine reduces the pulse-rate with the temperature, acting practically without cardiac depression. In only two cases of the 150 in the series referred to were there any collateral symptoms noticed. The first was a woman, aged 19 years, suffering from typhoid fever, with lobar pneumonia, accompanied by severe delirium. Here, after the administration of twenty-two grains and a half in divided doses at three-hour intervals, there appeared cyanosis, cool surface, and a rapid pulse, requiring stimulation. The other was a case of far-advanced pulmonary phthisis, complicated by appendicitis, in a woman aged 50 years, in whom the debility was marked. Here, after the ingestion of fifty grains in divided doses at four-hour intervals, there appeared symptoms of collapse, which lasted two hours, but were not followed by any bad effects.

The drug was used in doses ranging from two grains and a half to twenty-five grains. The usual dose was seven grains and a half. The maximum amount administered in twenty-four hours was sixty grains. On account of its being sparingly soluble, it is best given in tablets, wafers, capsules, or dry on the tongue.

MECKEL'S DIVERTICULUM AND THE OMPHALO-MESENTERIC DUCT.[1]

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In an autopsy that I recently had occasion to perform at the University Hospital on a man, aged 31 years, who had died of exhaustion following chronic colitis, I found, on opening the abdominal cavity, a long, fibrous cord passing from the peritoneal surface of the umbilicus towards the right iliac fossa and joining a coil of small intestine. (See Fig. 1.) On dissection it was seen that the place of insertion of the cord was on the side of the lower ileum, near the mesentery, at a point three centimetres above the ileocecal valve. The cord was eleven centimetres long and about three centimetres in width, cylindric in form, and apparently solid throughout. At its points of fixation it was a little wider than along its course. The mucous membrane of the ileum corresponding to the point of insertion was perfectly smooth and showed no opening into the cord. Beyond its two attachments—to the umbilicus and ileum—the band had no other point of fixation. During life it must have acted as a sort of suspensory ligament of the intestine, and must have been subjected to more or less traction when the patient was in the upright posture.

There was some adhesive inflammation at the ileocolic junction, probably connected with the extensive ulceration present in the cecum and colon, the intestine being the seat of a very marked colitis polyposa.[2]

The cord itself seemed to have produced no bad effects of any kind.

It is interesting to note that the man had other congenital anomalies, the most striking of all being a marked hypoplasia of the lungs, both organs together weighing only 520 grammes, or seventeen ounces, as against forty-two or forty-three ounces, the normal weight. As there was no apparent pulmonary disease, and as the man was only 31 years old, the smallness of the lungs could have had none

[1] Read before the Pathological Society of Philadelphia, May 12, 1898.

[2] This latter feature of the case will be dwelt upon in a separate paper by Dr. Stengel.

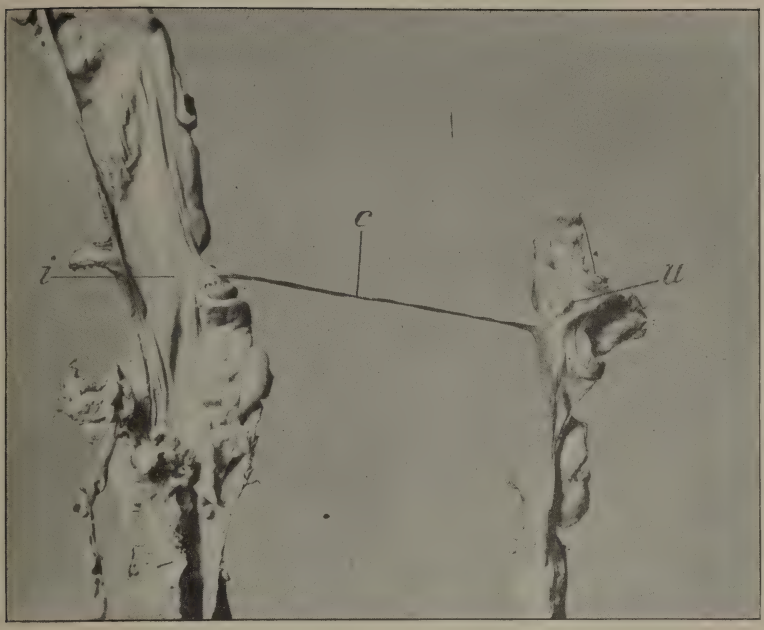


FIG. 1.

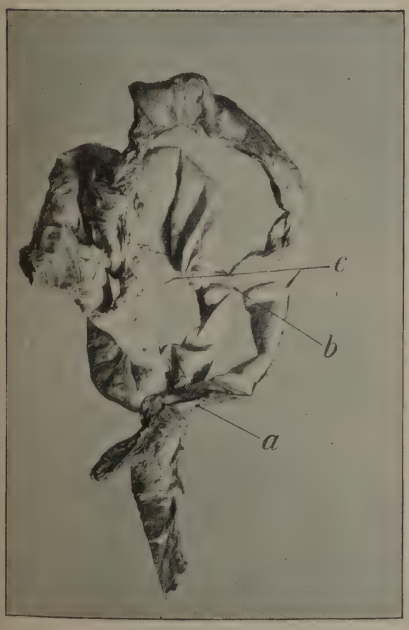


FIG. 2.

FIG. 14.—Scale, one-half life.

FIG. 15.—Scale, one-half life.

FIG. 16.—Scale, one-half life.

FIG. 17.—Scale, one-half life.

other than a congenital cause. There was, furthermore, a supernumerary spleen, and the remains of the hypogastric artery on the right side were remarkably conspicuous, the cord representing the obliterated artery being unusually thick and readily traceable up to the umbilicus.

As to the nature of the fibrous cord first described, there can be no doubt that it represents the remains of an embryonal structure, the omphalomesenteric or vitelline duct, or the vessels that in embryonal life accompany it. As will be shown below, there are reasons for considering it the remains of the vessels.

The vitelline duct is a tubular canal which at a very early period in embryonal life connects the primitive gut with the vitelline or yolk-sac. In the beginning, it will be remembered, the embryo lies with its endodermic surface spread out, like a leaf, on the yolk-sac. By a curving inward of the cephalic and the caudal extremities it becomes differentiated from the latter, and, the sides also folding in, is gradually lifted above the yolk-sac. The closure of the lateral folds forms the primitive gut, which, however, remains connected with the yolk-sac by means of the vitelline duct, along which run the vitelline vessels, the two, the duct and the vessels, forming constituent parts of the umbilical stalk. Examined at the end of the fourth week of embryonal life, the communication between the gut and the now-atrophied yolk-sac is only a narrow canal. At the beginning of the second month the intestinal navel closes entirely, and the vitelline or omphalomesenteric duct becomes obliterated. For a short time a loop of gut is still partly contained in the umbilical cord, but in the middle of the second month it withdraws from the latter, and the intestines then lie free in the abdominal cavity.

If the processes of constriction and retraction are interfered with, various malformations may result, consisting in a persistence of parts or the whole of the omphalomesenteric duct. We may classify the resulting anomalies as follows:

(1) Persistence of the proximal part of the duct,—Meckel's diverticulum.

(2) Persistence of the entire duct as a patulous canal.

(3) Persistence of the distal part of the duct, that connected with the navel.

(4) Persistence of a part of the duct near its middle.

(5) Persistence of the omphalomesenteric vessels.

Much evidence exists that these omphalomesenteric remains are capable of producing more or less serious disturbances; indeed, many fatalities are attributable to them. As to the frequency with which the anomalies are found, we have the statistics of Deschin,[1] who noted

vestiges of the vitelline duct in twenty-five out of 1367 bodies, or in 1.8 per cent.

In the lower animals remains of the duct are quite common. Allen[2] found them in every new-born cat and dog up to the age of a fortnight or more, and in a young lion of seven weeks. In a human fetus three inches in length they were of an extreme degree of tenuity. Schroeder[3] also found such vestiges in new-born cats, dogs, and rabbits. Persistence of omphalomesenteric remains in the form of a diverticulum is, as Cazin[4] has shown, the rule in the lower orders of birds, such as the water-fowl, snipe, and swan; in some species of the ostrich family the diverticulum is replaced by a sac containing altered vitelline substance.

Other congenital anomalies are not rarely found in association with persistent omphalomesenteric remains, as, for example, transposition of the viscera, spina bifida, extroversion of the bladder, cleft palate, harelip, imperforate rectum and anus, patulous septum ventriculorum, etc. In my own case, as already mentioned, several congenital malformations were discovered. Cazin,[5] in a case of intestinal obstruction, was led by the existence of harelip in the patient to suspect a diverticulum as the cause of the strangulation, and found his suspicions verified at operation.

The most frequent condition met with in man is *persistence of the proximal part of the duct* as a blind pouch, known as *Meckel's diverticulum.* (See Fig. 4.) This curious process had been observed by numerous anatomists, among others by Lavater,[6] the first to see it, by Ruysch,[7] Haller,[8] Fabricius,[9] and Morgagni,[10] the last even seemed to have had a correct suspicion as to its origin; but the first one to prove that the diverticulum represented the original channel of communication between the yolk-sac and the intestine of the embryo was Meckel,[11] who published his observations in 1809.[1]

The diverticulum springs usually from the ileum,—in 86 per cent. of all cases, according to Lamb;[12] in a few instances it has arisen from the jejunum and the duodenum. It is generally attached to the convex border of the bowel, but sometimes it arises nearer the mesentery, and rarely, as in cases reported by Roth[13] and by Fitz,[14] it lies entirely within the mesentery. In the last class of cases the appearance is usually that of a duplication of the intestine, the diverticulum running parallel with the bowel in the same mesenteric fold.

The average length of the Meckel diverticulum is three inches, (seven and a half centimetres); sometimes it is only a nipple-like pro-

[1] "Meiner Meinung nach haben sie (die Divertikel) in der anfänglich Statt findenden Communication zwischen der Nabelblase und dem Darmkanale ihren Grund."

Fig. 3.

Fig. 4.

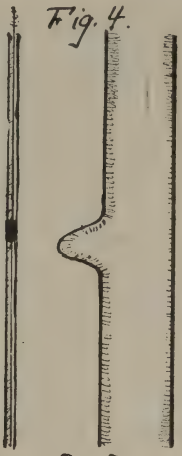


Fig. 5.

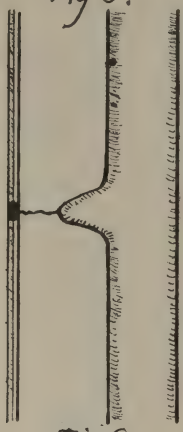


Fig. 6

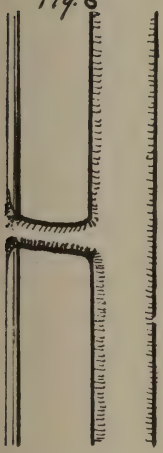


Fig. 7.

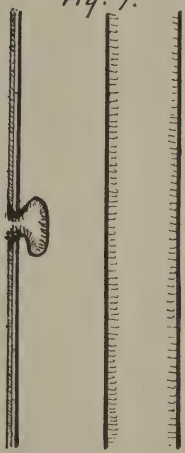


Fig. 8.

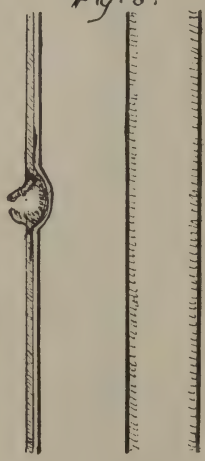
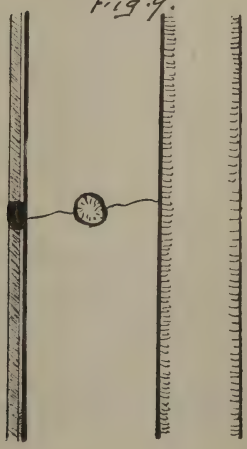
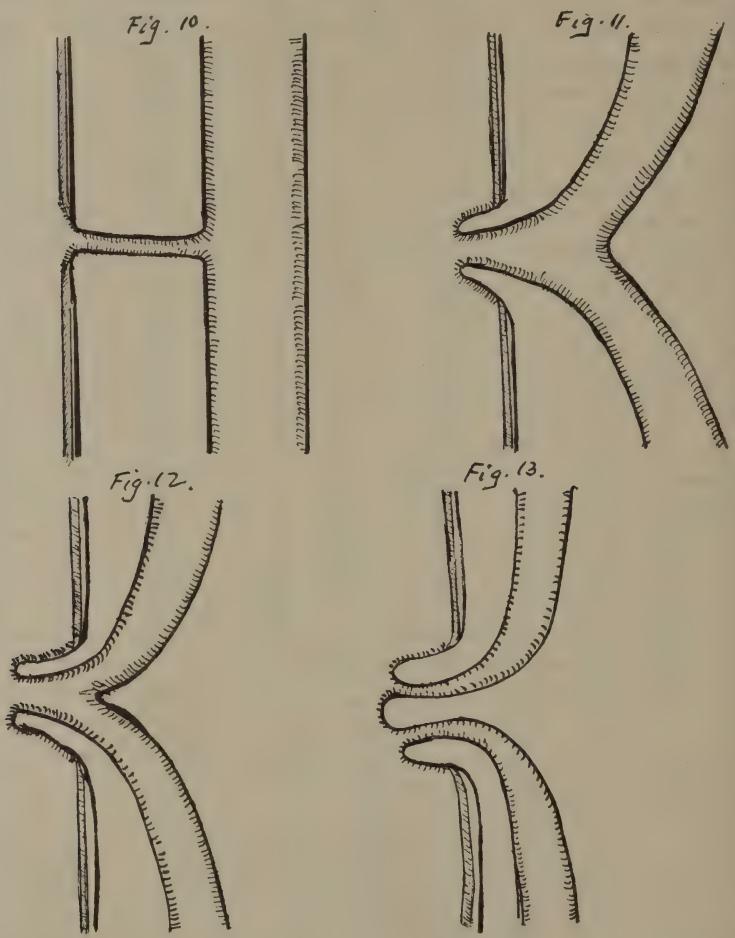


Fig. 9.



jection, and sometimes it attains, as in a case of Rokitansky's,[15] a length of ten inches. In the Museum of Morbid Anatomy of the University of Pennsylvania there are seven Meckel's diverticula, varying in length from four to seven centimetres. The shape of the diverticulum is usually like that of the finger of a glove; sometimes the process is conical, with the base at the intestine; occasionally it is



bulbous, the end being expanded into an ampulla. This is the case in two of the seven in the University's collection. (See Fig. 14.) In another of the seven the end is knobbed on account of several small cystic projections (see Fig. 15); and in one there is a small solid tumor at the end. Sometimes one or more small pouches project like accessory diverticula (*Nebendivertikel*) from the sides of the main process,

as in a case of Neumann's.[16] In structure the diverticulum is identical with the intestine, with the coats of which its own coats are continuous. The mucous membrane may be smooth, or it may have, as one in the University Museum, well-marked valvulæ conniventes. (See Fig. 16.) The muscular coat may be deficient in places; this leads to hernial protrusions of the mucous membrane under the serous coat. It may also possess a Peyer's patch (Cazin[17]). Sometimes there is a valve at the junction of the diverticulum and the intestine; a short mesentery has also been observed, as in a case reported by Dr. Fussell. Phoebus[18] found a diverticulum with two openings into the intestine, one of which had a valve. In two cases the free end of the diverticulum contained an accessory pancreas (Zenker, Neumann), a condition, Leichtenstern[19] remarks, as interesting as it is difficult of explanation.

The identity of structure existing between the diverticulum and the bowel led Ahlfeld[20] to the opinion that the diverticulum was really not the remains of the omphalomesenteric duct, but represented a traction-pouch or traction-diverticulum of the bowel itself. In view, however, of the fact that remains of the duct that are not connected with the intestine have a structure almost identical with that of the latter, it is probable that the majority, if not all, of Meckel's diverticula are actually remains of the duct.

The relation of the diverticulum to the ileocecal valve is very variable. Meckel found the distance from the latter to the point of origin of the process to be four feet in adults and one foot in the newborn; Lamb states that practically in all cases the diverticulum arises from a point in the lower five feet of the ileum.

Cazin in one instance found it springing twenty lines from the cecum. In my own case, the cord arose at a point three centimetres above the ileocecal valve, and in the case of a child 11 weeks old, reported by Wernher,[21] a diverticulum two and a half inches long, connected with the umbilicus by a narrow canal, was attached one and a half inches above the cecum.

The diverticulum usually hangs free in the abdominal cavity, but it may be attached (*adherent diverticulum*), by means of a fibrous cord arising from its apex, to the anterior abdominal wall, generally near or at the umbilicus, or to the mesentery. (See Fig. 5.) This cord represents either the distal part of the duct, and, indeed, has at times a minute channel, or the obliterated omphalomesenteric vessels. The cord may be torn, and the ends hang free in the abdominal cavity, or they may form adhesions to another part of the bowel, the mesentery, or elsewhere.

The most frequent point of fixation of the diverticulum appears to be at the mesentery, this having been the case in twenty-four out

of forty-six instances of intestinal obstruction from adherent diverticula collected by Neumann, and in the combined statistics of Cazin and Treves [22] such a mesenteric adhesion existed seventeen times in forty-two cases. The other cases tabulated by Neumann distribute themselves as follows: in five the adhesion was to the navel; in six to points on the abdominal wall at a distance from the umbilicus; in nine to other parts of the bowel or other organs; once, in the case reported by Jamain,[23] to an epiploic appendix; once to the vermiform process (Chiari [24]); once to the bladder (McGill [25]); in one case there were several adhesions, and in one there was a cord without a diverticulum. In the last case, reported in 1833 by Wagner,[26] the cord arose from the ileum and was inserted three inches above the ileocecal valve into the mesentery. It had caused a fatal strangulation.

Rarely the diverticulum is adherent by its free end without the interposition of a cord, as in the case of Hüber,[27] in which it was attached at the umbilicus.

One of the first instances of an adherent diverticulum recorded in literature is that of Sandifort,[28] published with an excellent illustration in 1777. The anomaly was found by him in an infant that had died during delivery, and he speculates with much acumen on the possible effects of the adherent diverticulum had the infant survived its natal day.[1] Sometimes, as in one of Neumann's personal cases, the cord arises not from the apex but somewhere along the course of the diverticulum.

In rare cases the diverticulum finds its way into a hernial sac; it may also become invaginated into the bowel, a condition to which I shall again refer.

The pathologic importance of Meckel's diverticulum is founded principally on two facts: first, that ulcerative lesions occurring in it are very prone to lead to *perforation*, and, secondly, that it is very apt to cause *strangulation of the bowel.*

Perforation may be due to the entrance of foreign bodies into the process. In a case observed by Körte,[29] a mass of cherry-stones, and in a case of Beale's [30] a cherry-stone, the coriaceous coverings of several orange-pips, and a concretion resembling those found in the in-

[1] Appendix hæc ex intestino ileo enascebatur et singulari modo cum mesenterio cohærebat. Ex parte illa intestini, quæ mesenterio opposita ostio, in cæcum finem desinens, ejusdem circiter capacitatis, ejusdem crassitei, quoad tunicas, ac intestinum ipsum, facillime aërem admittens, illoque distentum, apice incurvatum. Ex illo apice filum enascebatur tenue, forte tamen, ad superiorem mesenterii partem tendens, illique diverticulum hoc adnectens. . . . Pluribus vero malis, si natalem diem supervixisset infans, ansam dare potuisse hanc præternaturalem conformationem, ex insigni intestinorum motilitate, et facile enascende constrictione, quisque concludet, præsertim cum in cadaveribus hominum, iliaca passione ereptorum, simile quid visum fuit. Caput X. De appendice ex intestino ileo enata.

testines of horses, had caused perforation. If typhoid fever attacks the possessor of a diverticulum, the ulcerative process may, and probably nearly always does, extend into it, and then perforation is extremely likely to occur. I saw such a condition at an autopsy made last year; the specimen was exhibited before the Pathological Society by Dr. W. E. Hughes. Dr. Cattell, I believe, has also met with a case. Tuberculous ulcers may be found in the diverticulum, as in a specimen described by Fitz, which was the seat of three large ulcers.

Probably the most important morbid condition produced by the diverticulum is intestinal obstruction, the process coiling itself about a loop of bowel. This is especially apt to occur when the diverticulum has an expanded ampulla-shaped end, as that will prevent any knot that may be formed about a loop of bowel from being loosened. But strangulation by a free diverticulum is comparatively rare, for obvious reasons; it is only slightly more frequent than strangulation by the vermiform appendix. But when the diverticulum is attached by a band, as it often is, the chances for obstruction are greatly augmented. The band, as already stated, is most often affixed to the mesentery, and usually represents the obliterated vitelline vessels. A loop of bowel slips under the diverticulum and cord, and is constricted.

Remains of the vitelline vessels may also be found when there is no diverticulum. They present themselves in the form of bands or cords, usually solid, sometimes hollow, running from the anterior abdominal wall, especially the umbilical region, to the intestine or mesentery; at times both ends of the band are attached to the mesentery, or one to the mesentery and the other to the intestine.

Constricting bands are frequently interpreted as due to peritonitis, and such an explanation may be the proper one for some, as in a case that recently came under my observation, in which a cylindric cord between two and three inches long connected two loops of bowel, its point of insertion being, in each loop, at the base of a tuberculous ulcer. (See Fig. 2.) However, it is extremely likely that in many of the reported cases of intestinal obstruction by bands, the latter were the remains of the vitelline vessels.

An interesting case of this kind was reported to the Philadelphia Pathological Society by Dr. Roberts,[31] October 28, 1897. In a middle-aged man, who had died of intestinal obstruction, the autopsy revealed a loop of bowel encircled by a thin cord of tissue, looking like white string about the size used for tying grocers' parcels. The band or cord was thirteen centimetres long, and was attached at one end to the parietal peritoneum on the front of the abdominal wall and at the other to the mesentery above the upper portion of the constricted bowel. From another part of the bowel hung a pedunculated mass

of tissue, four and a half centimetres long, which looked like several lymphatic glands held together by connective tissue. The thread-like band ran through a little opening in this appendage as a cord runs through a pulley. The appendage was attached to the intestine opposite the mesentery, but had no opening into it, as would be expected if it had been a Meckel's diverticulum. There was no other evidence of peritonitis. The vermiform appendix was normal.

Whatever the nature of the peculiar appendage may have been, there can, I think, be but little doubt as to the character of the long band; it clearly represented the obliterated omphalomesenteric vessels. I have already referred to Wagner's case, which closely resembles that of Dr. Roberts.

In a case of persistent omphalomesenteric duct, recorded by Deschin,[32] in a boy 5 months old, an additional cord was found arising at the same level as the duct, but from the mesenteric wall of bowel, and passing towards the mesentery. Diakonow considered this cord the obliterated omphalomesenteric vessels, undoubtedly the only proper view, and one which is put beyond question by the coexistence of another part of the omphalomesenteric structure. Had the duct, as might have been the case, been obliterated, the cord would perhaps have been looked upon as a stretched peritoneal adhesion. Neumann,[33] moreover, was able to demonstrate by dissection in two cases a direct continuity between the cord attached to the diverticulum and the superior mesenteric artery. Fitz, in his excellent article, also emphasized the fact, which I have stated above, that the majority of constricting bands causing intestinal obstruction are the remains of the omphalomesenteric vessels, and not the result of peritonitis.

Strangulation by diverticula is especially common early in life,—in twenty-four out of thirty-five cases collected by Neumann it occurred in persons under the age of 30. It is far more frequent in the male than in the female sex. Leichtenstern among forty-six cases found thirty-one men and eight women; in seven the sex was not given. The average age of these cases was 25 years.

Among the rarest consequences of diverticula is to be mentioned *intussusception.* This is produced by an inversion of the diverticulum into the bowel, the inverted process causing the part of the intestine from which it arises to slip into the part beyond. A case of this kind was reported a few weeks ago by von Stubenrauch[34] to the Congress of German Surgeons. The patient was a child. An operation was performed five days after the onset of symptoms, but gangrene of the entire invaginated portion had already set in, and led to a fatal termination. A specimen of an invagination due to an inverted diver-

ticulum is also described by Treves,[35] from the museum of Guy's Hospital.

Persistence of the Entire Duct.—Instead of only the proximal part remaining, the entire omphalomesenteric duct may persist as a tubular canal lined with columnar epithelium. (See Figs. 6 and 10.) In such cases a *fistula* results, and there is noticed at the navel, soon after the dropping off of the umbilical cord, a small reddish excrescence from which moisture escapes in the form of mucus, sometimes bile-stained; occasionally, and in some cases almost constantly, a little fecal matter is extruded (*fecal fistula*). The opening at the umbilicus is usually small, and when there is no fecal discharge, it is difficult to differentiate between patulous vitelline duct and patulous urachus. Roth[36] suggested that in such cases a little fecal matter might perhaps be obtained by means of a catheter.

The origin of the fistula is as follows: For some unexplained reason the omphalomesenteric duct persists and extends for a considerable distance into the umbilical cord. When the latter drops off, the duct, which has formed adhesions to the edges of the umbilicus, is opened. The navel in these cases is usually very wide. Sometimes the mouth of the duct is closed for a time after birth, and only gives way on the occurrence of a violent straining effort, as during a spasm of whooping-cough.

In addition to fecal fistula a persistent vitelline duct is capable of producing more serious conditions. The first of these that we shall consider is *prolapse of the canal.* (See Figs. 11 and 12.) This produces the formation at the umbilicus of a short, cylindric, reddish tumor, which is covered with mucous membrane and has an opening at its summit. The mucous membrane becomes continuous at the umbilical ring with the integument of the abdomen. A probe introduced into the opening may pass into the bowel, and may cause the escape of a little fluid or fecal matter. A prolapsed urachus, as Barth[37] says, might produce a prominence of similar aspect, but no case of this has been recorded.

Another consequence, conditioned on the one just described, is *prolapse of the bowel* itself. (See Fig. 13.) The child's straining and pressing forces the loop of gut to which the duct is attached into the latter and then gradually outward, in the form of a reddish, U-shaped or bicornate mass, sometimes sausage-shaped, and several inches in length; in one case, that of King,[38] the prolapse measured as much as a foot. The mass is covered with mucous membrane, which extends down into the two openings that are found one at each side of the summit, and at the base of the tumor is continuous with the skin of the abdomen.

The accompanying diagrams will serve to illustrate the conditions described. (See Figs. 11–13.)

Prolapse of the duct alone is very serious. Sauer[39] collected twenty-four cases, nineteen of which had proved fatal. One danger arises from the operative procedure that the physician, not realizing the true nature of the process, feels tempted to adopt when he sees the reddish prominence at the umbilicus,—namely, ablation. A reference to Fig. 11 will show that he thereby opens directly the abdominal cavity.

As for intestinal prolapse through a patulous duct, the accident, according to the most recent writer (Körte) has always proved fatal, the children dying rapidly with violent symptoms of intestinal obstruction. In one case reported by Barth, a very interesting condition had been superadded to the prolapse,—loops of bowel had been incarcerated between the serous covering of the duct and the serosa of the abdominal wall, after the manner of a hernia.

Persistence of the Distal Part of the Duct.—The umbilical part of the duct sometimes remains, and its persistence may give rise to two somewhat different conditions,—first, the part in the immediate vicinity of the umbilicus is not obliterated and is transformed into a *preperitoneal cyst*, lying just behind the abdominal wall. (See Fig. 7.) Such cysts are lined with mucous membrane, in which follicles of Lieberkühn may be found, and which is covered with columnar epithelium, and often bears goblet-cells. These cysts have been described by Roser,[40] Küstner,[41] and others. A fibrous cord may pass from the abdominal wall to the intestine. Secondly, the part of the duct in front of the abdominal wall remains, and is converted into a cyst, lying in front of the closed umbilicus. (See Fig. 8.) In the instance reported by Zumwinkel,[42] the only one of the kind on record, the cyst secreted a mucoid discharge, and after removal was found to have a lining of mucous membrane with cylindric epithelium, villi, and follicles of Lieberkühn; there were also a muscularis mucosæ and two layers of muscle. Solitary follicles were not present, nor do they seem to have been observed in any reported tumor of the umbilicus.

The cysts just described may become inverted, and give rise to the appearance at the umbilicus of a reddish tumor, covered with mucous membrane.

Another and very peculiar condition to be described is *persistence of the duct for a certain distance somewhere between the ends*, and the cystic dilatation of the vestigial part. (See Fig. 9.) The cysts thus produced, the so-called *enterocystomata*, were first properly interpreted by Roth.[43] They are congenital, are found in the abdominal cavity, and in their walls represent more or less perfectly the structure of the

intestinal canal. They may or may not communicate with the latter. The mucosa possesses villi and tubular glands, and is covered with columnar epithelium. Cysts anatomically similar may be produced, as Roth as shown, by constriction of a normally formed bowel through fetal peritonitis or through torsion of the mesentery; still others represent a rudimentary twin.

I now come to the last anomaly,—namely, *persistence of the omphalomesenteric vessels.* Sufficient has been said about this under the head of Meckel's diverticulum, where the important part played by these remains in the production of internal strangulation was pointed out. As far as the cord found in my case is concerned, I am inclined to look upon it as the remains of the omphalomesenteric vessels, rather than as an obliterated duct, first, because of its tenuity; secondly, because of the absence of even the slightest indication of a diverticulum; thirdly, because of its insertion rather near to the mesentery; and, fourthly, because of the close proximity of its intestinal end to the ileocecal valve, diverticula, and ducts generally, though not always, arising higher up, while the insertion of vessels is more erratic.

Conclusions.

(1) Remains of the omphalomesenteric structures are not rarely found.

(2) Persistence of these structures may affect the proximal part of the duct (Meckel's diverticulum), the distal part of the duct, the entire duct, the more central parts, or the blood-vessels.

(3) The dangers from Meckel's diverticulum are perforation from ulcerative processes and foreign bodies, strangulation, and intussusception of the intestines.

(4) Strangulation is most apt to occur when the diverticulum is adherent. It is most common in the male sex and in early life.

(5) Persistence of the entire duct may lead to fecal fistula, to prolapse of the duct, or to prolapse of the bowel with strangulation.

(6) Persistence of the vessels, with or without persistence of part of the duct, very often leads to strangulation of the intestines.

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EXPLANATION OF ILLUSTRATIONS.

FIG. 1.—Cord (*c*) running from umbilicus (peritoneal surface) (*u*) to ileum (*i*).

FIG. 2.—Stretched peritoneal adhesion forming a cord (*c*); *a* and *b*, adhesion of coils of intestines at base of tuberculous ulcers.

FIGS. 3 to 13 illustrate formation of omphalomesenteric anomalies, and are explained in the text. Fig. 3 illustrates the normal condition. The two lines with oblique shading between them, represent the abdominal wall; the heavy line, peritoneum; the vertical shading, mucous membrane.

FIG. 14.—Meckel's diverticulum, with ampulla-shaped end, one-half natural size.

FIG. 15.—Meckel's diverticulum with cystic projection, probably hernial protrusion of mucous membrane, one-half natural size.

FIG. 16.—Meckel's diverticulum, turned inside out, to show valvulæ conniventes, one-half natural size.

FIG. 17.—Meckel's diverticulum, the common variety, one-half natural size.

SOME POINTS IN PROOF OF THE IMMUNITY THEORY OF THE WIDAL REACTION AND IN WHICH IS SET DOWN THE PRACTICAL LIMITATION OF THE TEST, AS SEEN

BY WILLIAM HEMPHILL BELL, M.D.

WHILE the typical case of typhoid fever presents few, if any, difficulties to the diagnostician, there are cases, aberrant in type, which by their mode of onset, course, or unusual symptoms are puzzling in the extreme. Such are those setting in with intense cerebrospinal manifestations (Osler reports three cases of this character which came to autopsy, in which no suspicion of typhoid fever had been entertained) or those in which the pulmonary symptoms are most conspicuous, the abdominal conditions being overshadowed.

On the other hand, acute miliary tuberculosis, or the long-continued fever, seen in cases of obscure, deep-seated suppuration, may simulate typhoid so closely that a diagnosis of ordinary methods is impossible.

It is in cases of this kind, particularly, that the physician looks to the delicate tests of the clinical laboratory for aid.

The diazo-reaction of the urine, it was hoped, would give an accurate diagnosis, but experience has shown that this is not to be relied on as a positive diagnostic element. Now it is this comparatively new serum test of Widal's to which our hopes have turned, but up to the present the profession has been willing to say only that its results are encouraging.

I have solicited the opinions of various prominent Philadelphia clinicians upon this subject, and all are of about the same tenor. Dr. J. M. Da Costa says: "As a general test the Widal reaction has proved of great value. It has been used largely at the Pennsylvania Hospital, and it is a fact that in the great majority of cases the Widal reaction has coincided with the clinical history. The reaction was frequently absent, however, in the first part of the disease, when subsequent developments proved it to be unquestionably typhoid, and in one case was unobtainable until the thirty-second day of the disease.

"In this it fails practically, but on the whole is a great addition to diagnosis."

Dr. J. C. Wilson expresses himself as being at present more or less uncertain as to the exact clinical value of the Widal test. In all his cases at the German Hospital they are making duplicate control tests, but the results have, as yet, not been formulated, and what his series of cases will portend is not known.

Dr. William Pepper and Dr. Alfred Stengel, as is seen in the "American Year-Book of Surgery and Medicine," are agreed upon this subject, and while both give full credit to the many merits in the test, they nevertheless seem fully to appreciate its practical shortcomings, such as, in the majority of instances, the delayed reaction, the possibility of obtaining the reaction in diseases other than typhoid, and the prolonged period after the decline of the disease, during which the reaction may be obtained. It is needless to say that they have removed from consideration here all the possible errors of technique, which are, in themselves, always simply ruinous to the reputation of any precise means of diagnosis.

Dr. Stengel went further, and expressed himself to me, personally, as strongly in sympathy with the immunity theory of the reaction. He was no doubt influenced to this conviction materially by personal observations.

In Dr. Hobart A. Hare's opinion, "the Widal reaction has without doubt proved the most valuable diagnostic test ever given to the profession, and is invaluable in making a differential diagnosis between typhoid fever and diseases presenting closely similar symptoms. At the same time it cannot be depended upon in a large number of cases

for practical purposes, as the reaction is often obtained too late to be used as anything but corroborative evidence."

Dr. H. C. Wood thinks the Widal test an excellent diagnostic aid, though not to be implicitly relied upon, for, in his experience, the extremes of the disease have furnished the cases of failure. The mild and the very severe infections, though, of course, by no means invariably, have given the negative results. This, he believes, points to the immunity theory and particularly the negative results in the malignant cases. As strongly illustrating this point, he cites a case of walking typhoid, which was within his knowledge though not a patient of his own.

The patient first presented himself to his doctor October 2, 1897. At this time the symptoms were mild and not at all typical of any one disease, let alone typhoid. The possibility of its being typhoid was considered, and a specimen of his blood was taken and examined, but with a negative result. He was required to go to bed, however, and was seen subsequently on the 3d, 4th, 5th, and 7th. At the expiration of this time all symptoms had subsided, and the patient was so much better in every way that he was allowed to be up. Now another specimen of blood was examined for Widal's reaction, but again with negative result, so there was no longer apparent reason for inactivity. Eleven days passed, during which time the patient attended to his business. On the twenty-second he again consulted the doctor at his office, and presented symptoms which compelled the doctor to order him to bed. Another specimen of blood was now examined, but again with negative result. From now on the patient was seen daily, but in spite of most careful treatment, giving the patient the benefit of the doubt, on November 1, after repeated hemorrhages, the patient died. No post mortem was held, but the feces were successfully examined for the Eberth bacillus at both the New York and Philadelphia Laboratories of Hygiene. This examination here acted as a check upon the Widal test, and in lieu of an autopsy proved the nature of the disease.

Never until the very last was there an association of symptoms warranting a positive diagnosis of typhoid, and, though typhoid was suspected, considerable reliance was placed upon the reports from the laboratory, as was natural in such a curious case.

Of late there seems to be increased doubt as to the efficacy of the Widal reaction in determining positively the existence of typhoid or enteric fever in those cases presenting atypical symptoms, or in verifying and supporting the diagnosis in what seems to be a clear case.

This question as to its value has its origin, first, in the conservative class, who are proverbially and wilfully slow to see the virtues in any

new thing, and, second, the much larger class, who take exception to the new thing on tenable ground; but not until it has been given at least a moderate trial, and then only because it has failed in some important instances, or because, for one reason or another, experience has not proven it equal to expectations.

At the outset, we must all acknowledge that the Widal test has so far borne up under the strain of a fairly exhaustive trial with more stamina than any other one test of equal importance, not alone to the profession but to suffering humanity as well. This concession means a great deal, and in saying it I feel that one is justified in offering any criticism within reason.

The purpose of this paper is not to attempt to disprove what empiricism seems to establish almost beyond a doubt,—viz., its value and reliability as a test; but to add my quota to the effort, which exists in some quarters, to place the responsibility of the reaction upon an antitoxin or antibodies, whatever they may be, and to try to show that the Widal test has definite practical limitations.

The majority of casual thinkers upon this subject acknowledge to be uncertain as to exactly what does bring about the reaction,—toxin or some antielement. There are arguments on either side apparently convincing, but we all know by experience that an abundance of testimony can be found to apparently substantiate any theory.

I have closely observed a series of over 100 cases, and am acquainted, through the kindness of Dr. Steward, with the results of the Bacteriological Bureau of the Board of Health in Philadelphia, and the points which come to my mind in this study lead me strongly to the belief that some product of the antagonistic metabolic activity of the organism is the element concerned. In other words, that it is a reaction of immunity, and herein lies the chief reason for the restricted usefulness of the test.

I make this statement in the face of Widal's apparently unanswerable arguments and notwithstanding them. He holds that the phenomenon is one of infection, not immunity, and bases his conclusion upon the observation that the reaction in some cases appears to be greatest during infection, and to diminish at the beginning of immunity. In his own words, "The agglutination reaction is often more intense at the beginning of the disease than at its height or during its decline; it diminishes and frequently disappears in man from the first period of convalescence,—that is to say, at the moment when immunity is most perfect; it is relatively rare in patients who have been cured of typhoid for more than a year." Sicard supports him in his theory, and so also do Fränkel and Jemma, apparently, in this: that both in-

cline to the belief that the promptness and character of the reaction depend upon the intensity of the infection.

As opposed to these men I may place Thiroloix, who states that the prognosis does not depend upon the intensity of the reaction, and Bruer, who in all his cases observed no relation between the severity of the attack and the intensity of the reaction. Jemma also seems to oppose himself on this point, in making the contradictory statement that "experiments show that the reaction is greatest during the period when the bactericidal power of the blood serum is greatest,—at the febrile acme."

If we were to answer the above and, I think, the only strong arguments, which Widal and his followers offer in support of the infection theory, it could be successfully done by assuming simply that the sero-reaction is due to a product of the organism and not the bacillus. For example, the individual is physically vigorous with active resisting powers; and, simultaneous with or following closely upon infection, we have in the body the formation of an antagonistic product, a product perhaps not specifically antagonistic but generally so to a number of diseases. Then, at the decline of the disease, the necessity for that product being gradually lessened, we find it disappearing,—either absorbed, neutralized, or eliminated,—until finally, when health is regained, the body is immune through its own vitality, but not through the agency of any permanent immunity substance. This sequence of events in the milder cases, where the irritation is not sufficient to excite the production of a more stable antielement. Thus, you will notice, in many instances our opponent's arguments may be interpreted to talk for us, whereas, those which I here offer in favor of my theory (that of immunity) can mean but one thing.

It has been said that the imperfect success, with the Widal test, of some bacteriological bureaus is largely due to the fact that they use low dilution cultures, and therefore defeat their own object by antagonizing too strongly the antitoxin in individual specimens.

A. H. Appel points to this fact as an argument for the immunity theory; thus fifty cases of typhoid fever were tested upon attenuated cultures and more or less typical reaction obtained. With virulent cultures, cases which were convalescent for some time under the same conditions gave constant negative results.

Stern and others call attention to the fact, already extensively realized, that the sero-reaction may not appear until the disease is advanced to the second, third, or even fourth week.

In a series of 300 cases, taken from the records of the Episcopal, Presbyterian, and St. Agnes's Hospitals, we find that the Widal reaction was unobtainable until the disease was well advanced, the average

in this series being the ninth day, and the earliest being the fifth of the disease. Furthermore, we notice in this same series (and now I will confine my remarks to the 100 cases at St. Agnes's Hospital) that, dependent upon whether the patient was poorly or well nourished, it was possible to get a reaction later or earlier in the disease,—although this last statement is not absolutely so, for in isolated cases of both the mild and severe type, with varying physiques, it was not possible to obtain a satisfactory reaction until the establishment of convalescence. The successful reaction here seemed to wait upon the development of, what we will call for convenience, the antitoxin to sufficient proportions to not only neutralize the toxin but more than counteract it, and just as the toxin was of a virulent nature or not and according as the patient's vitality or resisting powers were weak or strong,—*i.e.*, the antitoxin manufactured by the system slowly or easily and rapidly we got a later or earlier reaction.

At this point, and quite apropos, I would like to make brief mention of a case which was under the care of Dr. P. B. Stahl and myself at St. Agnes's Hospital during the past summer, and which interested me extremely. It is a case strongly representative of several that I observed, though this one is the most striking of all, and therefore why I mention it.

James G., a man of weak vitality, was admitted to this hospital with all the symptoms which clearly pointed to a typical case of typhoid fever. The exact day of the disease was unobtainable, but he had been sick on shipboard for some time previous to admission into the hospital, so that the disease must have been quite well advanced. Five days after admission a specimen of his blood was tested with a negative result. Three days later a second examination was made, with a doubtful result. And these results were repeated with the same order in two subsequent tests. You will notice that at no time was there a positive reaction; only two periods of doubtful reaction alternating with periods when absolutely no reaction could be obtained. It is worth while noting that at the time of each partial reaction there was a marked remission in the severity of the symptoms. Here, it seemed to me was a pretty demonstration of the inimical relations of toxin and antitoxin; that as one or the other was in the ascendency there was respectively a resumption of or an alleviation in the severity of the symptoms. This case relapsed twice, and finally, upon the establishment of convalescence, a perfect reaction was obtained.

The agglutination of the bacilli in the presence of the proper specimen of blood is an effort, I take it, upon the part of the bacilli to protect themselves, just as the ground-hog hibernates during the winter to isolate itself from uncongenial conditions or surroundings.

There is no reason why the typhoid bacillus should agglutinate in the toxin which is a product of its own nature, and one in which the bacilli should feel perfectly at home, whereas, an antitoxin, as the name implies, is inimical to the bacilli, and would in all reason cause a change in the characteristic appearance of the bacilli, such as agglutination. Such is the case. They are surrounded by an unfriendly medium, and so unite forces, as it were, for protection until they can manufacture enough poison to neutralize, and then go on their individual ways again. This actually happens. After about twenty-four hours, in a specimen, which has given an undoubted reaction, the typhoid bacilli regain their activity, the clumps break up, and each bacillus goes his own way rejoicing.

It is a well-known fact that certain cultures of bacteria ultimately kill themselves by virtue of the virulence of their own life product; but if this fact accounted for the immobilization of the typhoid bacilli there would not be the above-mentioned resumption of activity. Again, if the toxin caused the agglutination, the activity of the Eberth bacillus would be antagonistic to itself, and the disease would be a more rapidly and certainly self-limiting disease than it is.

One of the greatest fallacies in the clinical application of the Widal test is the possibility of getting the reaction months and even years after the patient has suffered from the disease. This may be counted as an additional point against the claims of unqualified practicability of the test, and the fact supports alone the theory of immunity. But to go further, and say just what does antagonize the work of the Eberth bacillus, is an impossibility at present.

It is my opinion, and, I believe, also the opinion of the profession at large, that typhoid fever is pre-eminently a disease in which treatment should be commenced early; and if it is true, as Brant, Wilson, and others have said, that the mortality of this dread disease is materially lowered by prompt treatment, the Widal test fails here practically, because of the tardy appearance of the reaction.

A number of doctors have told me that their faith in the Widal test as an unfailing factor in diagnosis is so unadulterated that they doubt strongly the correctness of their own symptomatic diagnosis of typhoid fever unless supported by an affirmative from the city bacteriological laboratory. Without meaning to criticise, this attitude implies a lack of confidence in one's own ability and a weak dependence upon more or less of an uncertainty, and, if the opinions of representative men and the statistics which I cite are to be given any credence, it follows that a diagnosis must be made, as of yore, upon the symptoms and signs.

This is my main point evidencing the practical limitations of the

test, but there are other less important and perhaps less certain claims going to prove my assertion. Prominent among these is the claim that the Widal reaction may be obtained in diseases other than typhoid. Dr. J. C. Da Costa, Jr., Catrin, and others have done work tending to show that the reaction can be obtained in some cases of tuberculosis and pneumonia, etc., so that there may not be a special antitoxin, but a common product of cell-metabolism, which is excited by a number of different disease-germs, and which is equally opposed to each.

In conclusion, a word anent its prognostic value. Stern asserts that the test has no value in prognosis, and to a certain extent I agree with him; but I believe that it is possible in certain cases to anticipate a relapse by the character of the reaction or the result of the test. The case of James G., which I recited in detail, was prominent in suggesting to me this point of possible value to the profession; that in distinct cases, in which the reaction has been doubtful or the test has given a negative result throughout the greater part of the disease, there is great likelihood of a relapse, either from the excessive virulence of the infection or from the weak metabolic activity of the organism.

ALUMNI NOTES.

COMMENCEMENT WEEK, JUNE 3 TO 8, 1898.

Friday, June 3, 8.00 P.M. Annual commencement exercises of the Philomathean Society, College Chapel. For further information and tickets apply to Mr. Harold Harrison Tryon, Cynwyd, Pa.

Saturday, June 4, 8.00 P.M. Annual commencement exercises of the Zelosophic Society, College Chapel. For further information and tickets apply to Mr. Walter Biddle Saul, 1900 Wharton Street.

Sunday, June 5, 11.00 A.M. University sermon to the graduating classes of all departments at the Second Presbyterian Church, S. E. corner Twenty-first and Walnut Streets, by the Rev. Lyman Abbott, D.D. (Seats will be reserved for Trustees and Members of Faculties until 10.55 A.M.) Members of the graduating classes will assemble in the robing room of the church (entrance on Twenty-first Street) at 10.45 A.M. sharp.

Monday, June 6, 10.00 A.M. Class day exercises of the graduating class of the College, Academy of Music. Valedictorian, Mr. Charles Souder Langstroth; historian, Mr. Jasper Yeates Brinton; prophet, Mr. John Louis Haney; poet, Mr. Frederick Logan Paxson; pre-

senter, Mr. Arthur Howell Gerhard. For further information and tickets apply to Mr. James Heidel Langstroth, chairman, University Dormitories. 7.30 P.M. Ivy planting exercises, College Campus. Orator, Mr. Joseph Russell Smith; poet, Mr. Frederick Logan Paxson. For further information apply to Mr. Horace Craig Longwell, chairman, 4445 Chestnut Street. 9.00 P.M. Senior promenade, Houston Hall. For further information and tickets apply to Mr. Charles Ingersoll Hutchinson, chairman, 133 South Twenty-second Street.

Tuesday, June 7. Alumni Day. 12.30 P.M. Annual meeting of the General Alumni Society, Houston Hall. For further information apply at the office of the society, 305 Harrison Building, Fifteenth and Market Streets. 1.30 P.M. Luncheon for alumni of all departments in the Dining Hall. Prominent speakers will be present. The subscription to the luncheon has been fixed at one dollar, and should be sent to the office of the General Alumni Society. Cards of admission will be mailed to subscribers. For further information apply to Mr. John C. Bell, 1001 Chestnut Street, or at the office of the General Alumni Society, 305 Harrison Building, Fifteenth and Market Streets. 4.00 P.M. Baseball at Franklin Field. "Alumni" *vs.* Pennsylvania. 4.30 P.M. Annual exercises of the Phi Beta Kappa Society, Houston Hall. 5.00 P.M. Reception to Alumni by the Class of '87, College, Houston Hall. 7.00 P.M. Annual meeting and banquet of the Society of the Alumni of the Department of Dentistry. For further information apply to Dr. Luther M. Weaver, 7103 Woodland Avenue. 7.30 P.M. Annual meeting and banquet of the Society of the Alumni of the Department of Medicine. For further information apply to Dr. Roland G. Curtin, 22 South Eighteenth Street.

Wednesday, June 8. Commencement Day. 9.45 A.M. The Graduating Classes will form by Departments in College Hall. 10.00 A.M. The Governor, the Provost, Trustees, and Members of Faculties will assemble in Room 116, College Hall. 10.15 A.M. The academic procession to the Academy of Music will move as follows: Graduating Classes, Officers of Instruction, Trustees, the Provost, and the Governor. The route will be as follows: Down Walnut Street to Twenty-second Street, thence north to Chestnut Street, thence east to Broad Street, thence south to Academy of Music. 11.00 A.M. One Hundred and Forty-second Annual Commencement, marking the 158th year of the University's existence. Orator, Hon. John B. McPherson. Conferring of degrees in course in Arts, Science, Laws, Philosophy, Medicine, Dental Surgery, and in Veterinary Medicine. Conferring of honorary degrees. Academy of Music. 8.00 P.M. Annual meeting of the Society of the Alumni (college), Houston Hall, followed by collation in the Dining Hall. For further information

and tickets apply to Dr. Morris Jastrow, Jr., Treasurer, University Library.

William Wilkins Carr, '73 C., *Chief Marshal.* Edward Alexander Anderson, '78 L., Henry Blackwell Bartow, '78 C., William Sergeant Blight, Jr., '78 C., Joseph Spencer Brock, '88 C., Frederick Fraley Hallowell, '78 C., Josiah Ogden Hoffman, '78 C., Harry Shelmire Hopper, '78 L., Joshua Bertram Lippincott, '78 C., James Barton Longacre, '88 C., Casper Morris, '78 M., John David Samuel, '88 C., William Caner Wiedersheim, '88 C., *Assistant Marshals.*

Action of the Trustees on the Gift of Colonel Joseph M. Bennett.

At a meeting of the Board of Trustees, held on May 3, 1898, the following resolution was adopted:

Resolved, That the Trustees of the University of Pennsylvania gratefully accept the generous gift by Colonel Joseph M. Bennett of the valuable properties, Nos. 3440–42–44 and 3346 Walnut Street, to be added to his former gift of the two adjoining properties now known as Bennett Hall, and to be devoted to the same purpose,—the higher education of women. On the foundation provided by Colonel Bennett's former gifts of property and endowment, the Trustees have established a Graduate Department for Women, which has been eminently successful, and they are encouraged by this later donation to hope that his liberality may be so seconded by the community as to enable them in the near future to offer full undergraduate courses for women equivalent to those now enjoyed by men.

Work on the Museum Building.

The construction of the University Museums, at the corner of Thirty-fourth and Spruce Streets, is rapidly nearing completion, and the building now gives a very adequate idea of what it will be when finished. There are few more imposing edifices in the city than this will be, and when the buildings for the Philadelphia Commercial Museums are erected, on the northeast corner of the same square, the group will form a very imposing addition to the University. It is proposed to leave between the two structures a large court, in the middle of which will be erected a seventy-foot fountain.

The building, as far as completed, is in the shape of a square with the front open. Between the two wings the ground is now being removed to the level of the street, and another court will be made here. Above the court is the main entrance, consisting of a double pair of steps surmounted by a high marble doorway and flanked by marble

pillars. This is raised some twenty-five feet above the court and gives a very imposing appearance to the building.

Enclosing the court on the street side is a wall about eight feet high, while another, four feet high, runs the full length of the building. Both of those are almost finished. The roofs have been completed on all but a part of the east wing, and the men are now at work on the rotunda in back of the entrance.

Alumni Reunions.

The annual meeting of the General Alumni Society will be held in Houston Hall, on the morning of Alumni Day, Tuesday, June 7. This will be followed by a luncheon, served in the Library, at which there will be addresses by Provost Harrison, Dr. William Pepper, and some of the distinguished guests. In the evening there will be the annual meetings and banquets of the Dental and Medical Alumni.

Proposed Reunion of the Class of 1848–49.

Certain graduates of the University of Pennsylvania of the Class of 1848–49 have asked the editor of the *Journal of the American Medical Association* to find out how many of the old class are still alive and their present address, as it is desired to have a reunion, if possible, in 1899. Any address sent to the editor of the *Journal* will be duly forwarded.

Memorial Gates of the University.

At the twenty-fifth anniversary dinner of the Class of '73 C., held on May 16, 1898, it was resolved to present Memorial Gates to the University, to be erected, probably, at the entrance of the new University walk, Thirty-sixth and Spruce Streets.

Portrait of Professor Cope.

A life-size portrait of the late Professor Cope has been presented to the University and now hangs in the Library of the Biological Department. The portrait is similar to the ones painted for the Academy of Natural Sciences by the same artist. It will serve still further to preserve to the future generations of students the name and fame and personality of one of our greatest scholars.

Result of the Examination for Resident Physicians at St. Mary's Hospital.

At an examination recently held at St. Mary's Hospital, Philadelphia, for the position of resident physicians, there were twenty-one men examined, fifteen were from the University of Pennsylvania. Of

these, the first seven received an average of ninety and over; they were all University of Pennsylvania men. The next group of seven received an average of over eighty; all but one were University of Pennsylvania men. The next group of seven received an average below eighty; of these only two were University of Pennsylvania men. It will be seen that but two men from the University failed to get an average of eighty or over.

Pennsylvania Men in the Army.

Dr. George H. Richardson, Class of '91, who subsequently served as resident physician in the Philadelphia Hospital and as assistant to Dr. Shakespeare during his term of office as port physician, has just returned from Burmah, where he has resided for the past two years. Upon his arrival in the United States he was appointed acting assistant surgeon in the United States army, and attached to the expediton about to start to the Philippine Islands.

Among those in camp at Mount Gretna are the following graduates and students of the University:

In the hospital corps of the Third Regiment—Dr. Edward Martin, major; Dr. Patterson, lieutenant; Dr. Bowman, lieutenant; C. C. Rayburn, '01 M., assistant; Herman Bryan, '01 M., assistant.

Other assistant surgeons:

Second Regiment—Dr. Frederick Packard.

First Regiment—Dr. J. P. Tunis, Dr. L. E. Smith, Dr. James; James D. Heysinger, '01 M.; G. V. Tismer, '98 M.; F. A. Fraser, '00 M.

First City Troop—Dr. C. H. Frazer.

Permanent Organization of the Class of '97 of the Medical Department.

About twenty members of the Class of '97, of the Medical Department of the University of Pennsylvania, met Wednesday evening, April 27, at the Odd Fellows Temple, Philadelphia, in answer to a call for a class reunion.

Arrangements were perfected for the formation of a permanent class organization. It was also decided to have a reunion every year.

Speeches were listened to from Drs. George M. Coates, Clarence W. Wille, William Herr, Joseph T. Buxton, and others.

Three members of the Class, Drs. George M. Coates, Frank B. Hancock, and J. S. Choffee, have recently been commissioned as assistant surgeons in the United States navy.

John I. McKelway,
Secretary.

Necrology.

Dr. Thomas Dunn died at West Chester, Pa., May 6, 1898. Dr. Dunn was born in Crawford County, Pa., in 1854, and was graduated from the University of Pennsylvania in 1881. He was a member of the Philadelphia Pathological Society, the College of Physicians of Philadelphia, and of the Pennsylvania State Medical Society. He was one of the founders of the Chester County Hospital.

Dr. George W. Freeman, aged 66 years, died at Freemansburg, Northampton County, Pa., May 16, 1898. He was a member of the Northampton County Medical Society, and a graduate of the University of Pennsylvania.

Dr. George S. Klinck, of the Class of '96, died in Philadelphia, May 7, 1898.

Dr. Philip D. Baker, of the Class of '74, died in Franklintown, Pa., March 8, 1898. He was born in York County, Pa., November 19, 1848.

Dr. Alexander Fulton, of the Class of '75, died in Philadelphia, February 28, 1898, aged 43 years.

Dr. Elmer R. Snyder, of the Class of '89, died in Philadelphia, March 16, 1898, aged 31 years.

Potassium Iodide in Metrorrhagia from Uterine Fibroma.

Boquet (*Semaine Médicale*, March 2, 1898) states that he has obtained very favorable results from the use of potassium iodide in hemorrhage resulting from uterine fibroids. Two years ago he prescribed the drug in a case suspected to be syphilitic, giving thirty grains a day the first week, and increasing the amount by fifteen grains weekly for three consecutive weeks, so that in the fourth week the patient was taking seventy-five grains a day. This dose was subsequently reduced to thirty grains a day. In two weeks the bleeding ceased and with it the syphilitic lesions. At a later period the drug was discontinued, and soon the hemorrhage reappeared; the iodide was again administered in smaller doses, and finally the patient was able to suspend the treatment for two, then three, and afterwards for six months. Encouraged by this result Boquet prescribed potassium iodide in the same doses in four other cases in which there was no suspicion of syphilis. In all these cases the bleeding was arrested and the tumor was diminished in size. The writer thinks potassium iodide exerts a special effect upon the female genitalia, and might be tried not only in uterine fibroma but also in hemorrhagic metritis.

EDITORIAL.

ACUTE CHOLECYSTITIS.

Acute inflammation of the gall-bladder has not until quite recently attracted general attention. In common with appendicitis, it would appear to be of more usual occurrence now than formerly, and probably for the same reasons. The bacillus coli communis is one of the most frequently found micro-organisms in gall-bladder inflammations, and is by all odds the most common cause of appendicitis. The bacilli, in each case, doubtless enter these organs from the intestinal canal. It has been conclusively shown that the colon bacillus may be present in both of these situations without giving rise to any symptoms. Just what conditions are necessary to develop active symptoms has not yet been satisfactorily determined. In the case of the appendix, our knowledge is accumulating, and there seems to be good reason for believing that, as long as the mucous membrane is in a condition of perfect health, the colon bacillus is powerless to do harm, but if the mucous membrane be in a state of inflammation or of ulceration, perhaps of congestion even, then the bacillus is able to penetrate the walls of the structure and set up a more or less severe inflammation. It is probable that the process in the gall-bladder is identical. Acute cholecystitis, while of infinitely less common occurrence than appendicitis, ranks in the severity of its symptoms and in the danger to life with the most serious forms of the latter. It may be quite as acute in its course as fulminant appendicitis.

One of the most frequent varieties of inflammation of the gall-bladder is that due to invasion of the bacillus of typhoid fever. This may occur at any time during the course of the fever, or after complete convalescence. Cases are reported in which the cholecystitis was shown by cultures made at the time of operation to depend upon the bacillus typhosus that did not develop until many months after recovery from typhoid fever. Miller reports a case in which the bacillus typhosus was present in the gall-bladder seven years after an attack of typhoid fever (*Bulletin of the Johns Hopkins Hospital*, Vol. ix, No. 86), and von Dungern (quoted by Keen) cites a similar case with an interval of fourteen and a half years. This post-typhoidal cholecystitis has been studied by Cushing (*Bulletin of the Johns Hopkins*

Hospital, Vol. ix, No. 86), who explains the condition as follows: (1) The bacilli during the course of typhoidal infection quite constantly invade the gall-bladder; (2) the organisms retain their vitality in this habitat for a long period; (3) in the course of time the bacilli are almost invariably found to be clumped in the bile, suggesting the occurrence of an intravesical agglutinative reaction; (4) these clumps presumably represent nuclei for the deposit of biliary salts, as micro-organisms may with regularity be demonstrated in the centres of recently formed stones; (5) gall-stones being present in association with the latent, long-lived, infective agents, an inflammatory reaction in the viscus of varying intensity may be provoked at any subsequent period.

Flexner obtained pure cultures of the typhoid bacillus from the bile in 50 per cent. of the fatal cases of typhoid fever at the Johns Hopkins Hospital. The discovery of Eberth's bacillus in the gall-bladder of a patient operated upon for biliary calculi who had never had typhoid fever, recorded by Cushing, is of particular interest. Keen ("The Surgical Complications and Sequels of Typhoid Fever") records seventy-four cases of typhoid infection of the gall-bladder, accompanying or following typhoid fever collected by Westcott. Of these, thirty resulted in perforation; four were operated upon, with three recoveries; and the remaining twenty-six all died. The tendency to perforation in these cases and the very serious nature of this accident give to the early recognition of infective cholecystitis and what might be called prophylactic cholecystostomy an especial importance. The specific micro-organisms of the other infectious diseases appear to be capable of setting up acute cholecystitis, although much less frequently than the colon bacillus and the bacillus typhosus. The mode of infection in the two latter is probably through the bile-passages, as a rule, although it is stated that the germs may reach the gall-bladder through the circulation, in the former the blood is doubtless the means by which the infective organisms reach the biliary system.

The symptoms of acute cholecystitis are those of localized peritonitis in the region of the gall-bladder. Next to appendicitis it is the most frequent cause of peritonitis in the male, and excluding those cases dependent upon tubo-ovarian disease, the same statement also applies to the female sex. In the event of rupture of the gall-bladder, the symptoms would be those of general infective peritonitis. The history of previous attacks of biliary colic would have an important bearing on the diagnosis, and the presence of a tumor in the region of the gall-bladder would strongly point to this organ as the source of trouble. The diagnosis between acute cholecystitis and acute appen-

dicitis sometimes requires the nicest discrimination, and is, occasionally, impossible, as has been shown by Richardson, of Boston. This is particularly the case in those instances in which, without any previous history as a guide, the gall-bladder is situated lower than normal, or the appendix occupies a position upward from the point of its attachment to the cecum. The symptoms which would demand operation in one case would call for the same course in the other. In the absence of any positive evidence pointing to either organ, the appendix should be first investigated, as this structure is so much more frequently the seat of disease. If the incision for this purpose be made as high as practicable, it may be prolonged upward to permit of examination of the gall-bladder, if this procedure becomes necessary, or the first incision may be closed, and a second made in the usual situation to expose the gall-bladder.

As has been indicated already, acute cholecystitis should be treated by cholecystostomy and drainage. An early diagnosis is very important in order that the operation may be performed before rupture occurs. The proportion of cases in which rupture occurs is very high, this accident followed the disease thirty times in seventy-four cases (Keen). In the event of rupture and general peritonitis incision, followed by cleansing the peritoneum and drainage, should be carried out as soon as possible. Three of four cases so treated recovered, while of twenty-six cases treated expectantly, all perished.

The frequent association of gall-stones with acute cholecystitis is of interest. Of the seventy-four cases already referred to, gall-stones were found in eighteen; in a few instances no post-mortem examination was made. It was definitely determined, however, that gall-stones were absent in thirty-eight cases. A number of writers have found micro-organisms, both living and dead, in biliary concretions. This fact has led some to assert that gall-stones are caused thereby, while Hanot and Létienne recognize two classes,—namely, those of microbic and those of non-microbic origin.

Concerning Parasitism.

Ribbert (*Deutsche medicinische Wochenschrift*, March 17, 1898) compares neoplasms to parasites, finding strong analogy in the growth of the former, their independent character, and in the manner in which metastasis develops. Tumors, according to him, always grow through a proliferation of their own cells and displace and invade the neighboring structures without transforming them into neoplastic tissues.

MEDICAL PROGRESS.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM PEPPER, M.D., LL.D., AND JAMES TYSON, M.D.,

ASSISTED BY

M. HOWARD FUSSELL, M.D., AND A. O. J. KELLY, M.D.

Water in the Treatment of Gastro-Intestinal Disorders.

Lichty (*Medical News*, April 16, 1898) shows by experiments upon himself and others that when ten to a dozen tumblerfuls of water are taken in twenty-four hours, there is a decided and constant effect upon the activity of the eliminating organs. In cases of chronic gastritis lavage or drinking of water has the happiest effect. Where there is much dilatation of the stomach water may be given in small doses often repeated, also in hyperchlorhydria.

In chronic constipation the condition is frequently better relieved by the ingestion of large draughts of water than by any other means. In the treatment of intestinal autointoxication water, taken in large quantities, is of value, especially in causing increased elimination.

Upon the Early Diagnosis of Pulmonary Tuberculosis.

Ambler (*New York Medical Journal*, February 12, 1898) says before Koch discovered the tubercle bacillus a case was almost always classed as an early stage case, provided the general appearance of the patient remained fair, and comparatively few cases were recognized as tuberculosis before they were hopelessly advanced. So-called first-stage cases usually embrace all cases up to the point of moderate infiltration in the lung, and possibly bordering on active cavity-formation, without the advanced symptoms. Our early stage cases to-day are those recognized before the stage of expectoration. In all my cases where I have observed the patient for weeks preceding the stage of expectoration I have invariably found fluctuation of the daily temperature. At a recent meeting of the society I alluded to the fact that we occasionally meet cases where the question of diagnosis between early tuberculosis and a beginning or mild type of typhoid fever was difficult to determine until after the lapse of several days. At that meeting one of the members took exception to what I said, and remarked that the symptoms present in typhoid fever were always sufficient to enable one to make a diagnosis. I wish to repeat that I do not believe all cases of typhoid fever must necessarily be severe in form, and, further, that the symptoms of a mild case, especially in the beginning, are in some respects similar to those observed in early tuberculosis. Moreover, the acute exacerba-

tions of a tuberculous fever in the so-called first stage are sometimes mistaken for symptoms of other diseases, notably a common cold or typhoid fever, and are treated as such. Let us remember that an early diagnosis is of more value, in reference to prognosis, than the administration of drugs. So far as possible, let us examine the members of the families we treat, especially so where some member is already suffering from tuberculosis, and, finally, let us remember that certain physical signs, when found concomitant with a daily rise of temperature over a series of days or weeks, are strongly indicative of tuberculosis, and, where the slight rise of temperature cannot be otherwise satisfactorily accounted for, no hesitation should be entertained in pronouncing the condition probably one of tuberculosis.

Comparison of Cases of Diphtheria treated with and those without Antitoxin.

Clubbe (*British Medical Journal*, 1897, Vol. ii, p. 1177) gives 600 cases of diphtheria treated, one-half were given antitoxin, the other half had no antitoxin. The Klebs-Löffler bacillus was found in all cases. The cases were treated in the same hospital, had exactly the same food, drugs, and stimulants.

In the 300 cases treated *with* antitoxin there were 129 tracheotomies; sixty died; the death-rate being 20 per cent.

In the 300 cases treated *without* antitoxin there were 199 tracheotomies and 158 deaths. A death-rate of 52.7 per cent.

It will be seen that not only was the death-rate more than twice as great in the cases treated without the serum, but there were seventy more cases which required tracheotomy. He also shows that the earlier the serum was used the better the results; however, it is of value even when given late. In 20 per cent. of laryngeal cases, even when there is dyspnea, it lessens the necessity for operation.

Influence of School-Life upon the Health of Children.

Johnston (Essay before Medical Society of the District of Columbia, April 27, 1898), in a thoughtful essay, goes over the ground of the question considered, and comes to the following conclusions:

(1) That there is a large amount of ill health among school children.

(2) That this ill health is due to a variety of diseases and disturbances of functions.

(3) That the same diseases and disturbances exist everywhere, and are constantly present.

(4) That they are aggravated by the condition of school-life.

(5) That they are increased in direct proportion to the number of hours devoted to study.

(6) That they often lead to a premature withdrawal from school, and are manifest in a large proportion of those who remain to the end.

Etiology of Cancer.

Roswell Park (*American Journal of the Medical Sciences*, May, 1898) gives a *résumé* of this question, in which especial reference is paid to the parasitic

theory. He quotes largely from the papers of Sanfelice and Roncali, and states that they have discovered a fungus belonging to yeasts as the active agent. This germ belongs to the blastomycetæ. They reproduce themselves by budding, and have the form of young cacti. It may be stated positively, he says, (1) that some of these germs may be isolated by culture methods from certain carcinomata and sarcomata; (2) that they belong among the yeasts; (3) they will produce tumors in animals by injections under certain precautions; (4) from these tumors further cultures can be made with which inoculation can be practised.

He also states that Gussenbauer has been able to obtain from seven cases of melanosarcoma an anaërobic coccus, which grows in ordinary culture media.

SURGERY.

UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.,

ASSISTED BY

ELLWOOD R. KIRBY, M.D.

Total Extirpation of the Bladder for Tumors.

Tuffier and Dejarier (*Revue de Chirurgie*, April, 1898) review the subject of total extirpation of the bladder, and report a case in which the bladder was successfully removed—by Tuffier—for an epithelioma, which had generally infiltrated the organ. The indications for such an operation must, it is stated, be very rare. The patient, on the one hand, should be strong enough to support so serious an intervention, and the disease, though of considerable extent, must not have invaded any structure beyond the bladder. The method of operation should favor rapidity, a minimum of disturbance, and the least possible interference with the peritoneum. In considering the mode of procedure, the surgeon has to adapt his plan to one or other of two kinds of cases: one in which the patient has already undergone suprapubic cystotomy, the other, in which the bladder has not yet been opened. In the former case the adhesions around the vesical fistula would necessitate a careful dissection, and the field of operation would be found infected. In the second case, an exploratory median incision should be made above the pubes, so that the surgeon may make out the extent and situation of the lesion. This preliminary stage, however, may be replaced by a careful cystoscopic examination. This would be an advantage from the point of view of asepsis, as a bladder so far diseased as to require cystectomy is usually infected. The incision of the abdominal wall, which would afford the widest field of operation, and, at the same time, cause the least disturbance, should consist in a median wound, joining at its lower extremity a horizontal one reaching from one external ring to the other, and dividing the recti muscles. When the bladder has been exposed the next important step is the separation of the peritoneum. This membrane can be readily detached from the point of the bladder, but adheres closely to the apex. Be-

hind and at the level of the prostate the bladder may be readily liberated after section of the ureters. As the bladder is being gradually stripped of peritoneum, the liberated portions should be brought into the wound, and freely exposed to the eye and finger of the operator. Both ureters and the lower vascular pedicles of the bladder may be secured by a clamp and then be divided above this. It is necessary before dividing the neck of the bladder to apply a curved clamp below the line of section. The free hemorrhage, which is likely to occur at this stage, can be arrested by ligature or the thermo-cautery. The mucous membrane of the vesical end of the urethra must now be destroyed, so that the large wound may not be infected from this source. In the female the ureters may be transplanted to the vagina, while in the male to the large intestine in the neighborhood of the sigmoid flexure.

Stretching of the Pneumogastric Nerve.

Jaboulay's (*Lyon Médical*, April 17, 1891) modification of the bulbous enlargement, a region of nervous centres so delicate to approach directly, is effected by this mode of treatment, and has been employed by the author in a case of epilepsy, in which it seemed to exercise a veritable influence on this region. The patient was a young man, who had had as many as twenty-five attacks a day, and the affection had been overcome by this treatment. This operation has also the advantage of preventing spasm of the larynx and the organs of deglutition, and of suppressing an approaching attack in many forms of essential epilepsy which begin in the region of the heart and stomach.

The author states that he has also practised this operation in cases of exophthalmic goitre, in which there were severe attacks of coughing, especially at night. In these cases it may be combined with unilateral stretching of the sympathetic with advantage.

Occasionally the operation is followed by a sort of harshness in the patient's voice during the first few days after the operation.

Extensive Injury of the Liver successfully treated by Operation.

Suyers (*Annales de la Société Belgique de Chirurgie*, April, 1898) reports a case of penetrating gunshot wound on the right side of the chest with laceration of the liver. The injury had been caused by a gun loaded with small shot. At the sternal extremity of the seventh rib was a small circular wound, which was plugged by a protruded piece of omentum. On opening up this wound and exposing freely the abdominal cavity, the author found that the free anterior margin of the liver formed a large, loose flap, which was attached to the rest of the organ merely along a portion of its upper surface. This flap was about four inches in length and two fingers' breadth in thickness. Between it and the lacerated liver structure on the under surface of the organ were found loose fragments of the seventh and eighth ribs. These fragments having been removed, several ligatures were applied along the attachment of the hepatic flap, and the flap cut away. The wound was plugged and drained by antiseptic gauze, and the case finally made a complete recovery.

THERAPEUTICS

UNDER THE CHARGE OF

HORATIO C. WOOD, M.D., LL.D.,

AND

ARTHUR A. STEVENS, M.D.

The Treatment of Chronic Gout.

Luff (*Lancet*, January 15, 1898), in a paper on the pathology and treatment of gout, offers the following suggestions as to treatment:

Promotion of the Elimination of Uric Acid.—This may be effected by medicinal treatment, and by diet and regimen. Citrate of potassium is employed as a diuretic, which increases the volume of the urine and at the same time diminishes its acidity. The use of the citrate of potassium may with advantage be pushed until moderate alkalinity of the urine is produced, as by such means the quadriurates are rendered more soluble and more stable than they are in an acid urine, and so the tendency to the deposition of uric acid or sodium biurate in the kidney tissues is removed. Free diuresis should also be encouraged by the drinking of sufficient quantities of water. A patient suffering from gout should avoid the use of common salt at table owing to the power it possesses of diminishing the solubility of sodium biurate, and thereby both augmenting the precipitation of that body and also interfering with its removal from the system. On account of the results that I have obtained with the mineral constituents of vegetables I am inclined to suggest that a table salt composed of the ashes of certain of the vegetables should be freely used by gouty subjects in place of common salt.

Means of checking the Excessive Formation of Uric Acid.—These consist in careful attention to diet and regimen, in the promotion of the metabolism of the liver, so as to check the excessive production of the antecedents of uric acid, and in the relief of congestion of the portal system, which can be effected by keeping the bowels open at least once a day. In addition to colchicum, which acts as a stimulant of hepatic metabolism, guaiacum may very usefully be administered as an alterative, which stimulates the metabolism of the liver and also affords relief to the portal system. From five to ten grains of guaiacum resin should be given in cachets two or three times a day, according to the effect on the bowels, since guaiacum generally acts as a laxative. If constipation occurs a sulphur and guaiacum tablet or a dose of compound liquorice powder should be taken at night. An occasional dose of blue pill followed by a purge of Epsom salts will be found useful.

Diet and General Hygiene.—A rational mixed diet is the one best suited for gouty patients, care being taken to avoid excess. The assumption that a purely vegetable diet is best for the gouty is erroneous, since the production of uric acid depends on the ingestion of proteid matter, and it makes no difference whether the proteid matter be of animal or vegetable origin. At the same time it must be borne in mind that since animal food is so much richer in proteids than a vegetable diet the amount of the former taken by the gouty should be strictly limited. Moreover, I find as the result of a lengthened series

of investigations that whereas the mineral constituents of meat exercise a marked effect in diminishing the solvency of a gouty deposit, the mineral constituents of most vegetables exercise a marked power in increasing its solvency. The vegetables whose mineral constituents I find are most efficacious in this respect are spinach, Brussels-sprouts, potatoes, cabbage, and French beans. At the same time it must be borne in mind that with certain patients some of these vegetables may tend to produce some form of dyspepsia, and I cannot too strongly urge that in the dieting of the gouty no hard and fast rules can be laid down, but the idiosyncrasy of each patient to various articles of diet must be made the subject of careful observation and study. The following plan gives an indication of the diet to be recommended:

Alcohol.—As regards the employment of alcohol each case must be individually and carefully dealt with. If the gouty person be of robust habit of body then total abstinence is undoubtedly the best for such a patient. If, however, the cardiac action be weak and failing then moderate quantities of alcohol should certainly be given. In cases of chronic gout a moderate amount of alcohol may be necessary for the promotion of digestion. The best form of alcohol for the gouty is a tablespoonful of matured whiskey freely diluted with saleratus or with plain water and taken towards the end of lunch or dinner. If any wine is taken by the gouty the one which is least open to objection is a good claret. Ale and stout should be avoided.

Mineral Springs.—The use of a mineral water, so far as its employment with the object of removing the gouty deposit is concerned, lies solely in its watery constituent, and does not in any way depend on the mineral salts dissolved in it.

Internal Use of Ichthyol in Respiratory Diseases.

Le Tanneur (*Wiener medicinische Blätter*, December 2, 1897; and *Medical News*) has employed ichthyol internally in doses of four grains, eight times daily, with success for more than two years past in diseases of the respiratory tract. This success has followed not only in cases of a chronic character, such as tuberculosis, dry and purulent catarrh, and bronchiectasis with offensive expectoration, but more recently he has used the same remedy with equally good results in the acute attacks of bronchitis, which often arise in phthisical patients; as well as during attacks of acute bronchitis in otherwise healthy individuals. In some instances, within three days after the remedy was first given, the cough entirely ceased.

It is important to give the ichthyol in capsules of gluten, so that the capsules will reach the intestinal tract before being destroyed. Ichthyol is best taken immediately after eating, half of the daily dose after one meal, and half after another.

Thallium Acetate in Night-Sweats of Phthisis.

Combemale, at a recent meeting of the Academy of Medicine (*Medical News*, April 2, 1898), spoke highly of acetate of thallium in the night-sweats of phthisis. He has had only one failure in the treatment of thirty patients. The remedy also exercises a beneficial effect upon chronic catarrh, due to bronchial dilatation, emphysema, etc. The daily dose is one to two grains, given in pills, about one hour before bedtime. It should never be given during more than four successive days.

Holocaine in Diseases of the Ear and Larynx.

Coosemans (*Revue hebdomadaire de Laryngologie, d'Otologie, et de Rhinologie*, December 11, 1897) contribute a paper comparing the value of cocaine and holocaine in diseases of the ear and larynx. They claim the following advantage for holocaine:

(1) Cost of holocaine is about one-fifth that of cocaine. It is used in 1-per-cent. solutions, while cocaine is used in 5- to 20-per-cent.

(2) Holocaine does not sting like cocaine.

(3) Holocaine has very little of the intense bitterness of cocaine.

(4) Holocaine causes no nausea, sense of constriction, or of a foreign body in the larynx. It causes no cerebral excitement, all of which cocaine produces.

(5) It does not contract the vessels, nor whiten nor reduce the tissues, an advantage in cauterizations.

(6) It never causes signs of general intoxication.

(7) The solution is fixed, antiseptic, and does not need sterilization.

Value of Potassium Permanganate as an Antidote for Opium and Morphine.

Thornton and Holder (*Therapeutic Gazette*, No. 1, 1898) state that there are three ways in which the antidote may overcome the toxic effects of opium: (1) Chemically, by oxidizing the alkaloids; (2) by acting as a physiological antagonist; (3) mechanically, by giving rise to severe pain, which follows the ingestion of potassium permanganate, thereby assisting in keeping the patient awake. The usual fatal dose of morphine was administered subcutaneously to six dogs, which resulted in their death in from two to three hours. In test-tubes two grains of potassium permanganate were required to reduce one grain of morphine, so that the amount of antidote was calculated on this basis. This was also administered hypodermically, at periods ranging from a few minutes to an hour after the poison had been administered. Five dogs so treated died as promptly as those which had received no permanganate, nor did the poisonous effects of morphine appear in any way to be modified. One dog received less than a toxic dose of morphine, and, although followed by permanganate, it did not appear to modify in any way the usual non-toxic effects of morphine. Lastly, a large dose of potassium permanganate was given subcutaneously to a dog which had not received morphine; and, with the exception of the pain, which lasted about thirty minutes, the animal appeared to suffer no inconvenience, and recovered fully. These experiments lead to a most serious doubt as to the efficacy of potassium permanganate as an antidote to opium or its alkaloids when hypodermically injected.

The Electrical Treatment of Neurasthenia.

Apostoli (*Annales de l'Electrobiologie*, January 15, 1898, and *British Medical Journal*) lays down the following postulates in the electrical diagnosis and treatment of neurasthenia, a subject which has been recently so much advanced by the discoveries and inventions of d'Arsouval. Neurasthenia is a clinical affection, which is best understood and treated after dismissing all thought as to its etiology. It is projected, as a rule, on a background either of hysteria or of arthritis; these color the symptoms differently, and necessitate different

treatment. Electricity properly used, quite apart from its curative properties, is a veritable touchstone in the detection of neurasthenia. Electricity may be accepted as the routine treatment for the affection, the particular variety to be employed varying with the subject. Local applications, especially at the beginning of the attack, are, as a rule, inferior to general electrical means, such as static baths, or baths connected with alternating currents of great rapidity. The more neurasthenia is complicated by peripheral nervous troubles, such as hysterical hemianesthesia, the stronger is the indication for the kind of electricity whose peripheral localization gives the highest tension. Here static electricity or franklinization is required, while in arthritic forms, or where the general nutrition is obviously affected, cellular currents, or those of high frequency should be employed. The hysterical form with anesthesia may yield to the simple static bath, but more often requires the use of sparks along the spine. Hyperesthetic hysterical subjects are best treated with very mild static electricity, no sparks being employed; the anesthetic patients are little, if at all, helped by currents of high frequency, and derive no benefit from auto-induction by the large solenoid. The arthritic class, on the other hand, are very susceptible to the shock of sparks, and are not benefited thereby; they improve greatly with rapidly alternating currents. In many cases, particularly in those in which the two classes of symptoms are combined, it may be advisable to use static electricity and the alternating currents simultaneously; galvanism and faradism are of little use in the treatment of neurasthenia.

OBSTETRICS.

UNDER THE CHARGE OF

BARTON COOKE HIRST, M.D.,

ASSISTED BY

W. A. NEWMAN DORLAND, M.D.

Pregnancy and Heart-Disease.

Luoff (*Annales de Gynécologie*, December, 1897) believes that it is necessary to interrupt pregnancy in cases of heart-disease only in those patients in whom there is a disturbance of compensation. In all other instances satisfactory results will follow close care during the latter months of pregnancy and labor, as well as in the puerperium. If heart-disease be discovered during gestation a milk diet, constant rest before and after labor, and heart tonics will generally suffice. In mitral disease heart-failure is most apt to occur during the second stage of labor. Rupture of the membranes is imperative in order to lessen intra-abdominal pressure, and labor should be terminated either by uterine contractions or by external pressure, without the aid of the abdominal muscles. In aortic disease the most dangerous period is immediately after labor, when there has occurred a profound alteration of the circulatory conditions. Cardiac stimulants must be used at this time in accordance with the indications. The heart should be closely watched for several days.

Retraction of the Uterus.

According to Demelin (*L'Obstétriques*, January 15, 1898), when ergot is not administered, pathologic retraction of the uterus may occur as follows: (1) At the time of delivery, incarcerating the placenta, the retraction involving the ring of Bandl alone, or the entire uterus; (2) while the fetus is still within the uterine cavity, the membranes, however, having ruptured while the whole or a part of the fetus is above the ring of Bandl; (3) before the membranes have ruptured. Demelin reports three cases of the last class. He explains their occurrence as follows: During labor there is normally formed a retraction ring, but if there is a simultaneous contraction of the lower uterine segment it is prevented from rising or from closing its orifice, and the flexed position of the fetal head causes the bisacromial diameter to escape immediately after the long head diameter (the occipitomental) has passed through. As a result the ring is unable to contract upon the fetal neck. If the head should be high up, however, and there is imperfect flexion, there will be a reversal of these conditions, and imprisonment of the neck will follow. Such an accident may occur in minor degrees of pelvic contraction in which an early engagement is presented, the head resting in a condition of unstable equilibrium between extension and flexion, and with the occiput directed posteriorly. The best treatment for such cases consists in rupturing the membranes just as soon as there is complete dilatation of the external os, as temporizing will allow an increase of retraction, and as the pains are not expulsive in character there will follow a tight contraction of the entire wall of the uterus around the fetus.

Cystic Disease of the Chorion.

Keiffer (*Bulletin de la Société Belgique de Gynécologie et d'Obstétriques*, No. 8, 1898) suggests as the direct cause of the myxomatous degeneration of the chorionic villi an endothelial proliferation leading to a vascular occlusion in the chorion, and he also suggests that this vascular lesion may be due to the administration of drugs for emmenagogic purposes, such as apiol, piscidia, and viburnum. He reports a case in which such drugs were employed with the subsequent expulsion of a hydatidiform mole. Jacobi, on the contrary, states that these emmenagogues are very freely used, and the relative rarity of cystic disease of the chorion is a strong argument against Keiffer's theory.

Incarceration of a Retroverted Pregnant Uterus.

An interesting case of this rare accident is reported by France (*Münchener medicinische Wochenschrift*, No. 1, 1898). The patient was a primipara, 18 years of age, who appeared at the University Clinic of Halle, and gave the following history: She had always enjoyed good health, but for a few weeks prior to her appearance had suffered from incontinence of urine and edema of the legs. There was also a painful distention of the abdomen, associated with decided labor-pains, during which there occurred a distention of the vulva and anus. Physical examination revealed a tumor which filled the vagina to such an extent that the finger could barely be admitted. Abdominal palpation revealed the feet and breech above the symphysis. The cervix and os uteri could not be found. A diagnosis was made of pregnancy at the seventh month complicated by some tumor, probably a dermoid cyst, located in Douglas's cul-de-sac,

and totally obstructing the parturient canal. The fetal heart-sounds could not be detected. Under complete chloroform anesthesia an attempt was made to dislodge the tumor from the pelvic canal, but without success. A trocar was then introduced, and a whitish, grumous fluid escaped, which was believed to come from a dermoid cyst. Abdominal section was then performed, and an incarcerated retrodisplaced uterus discovered. The dead fetus was extracted by the feet, and a puncture just back of the ear showed where the trocar had entered, the whitish matter being fetal brain-substance. The uterine opening was closed by the Sänger method, and an uninterrupted recovery followed.

Syncytioma Malignum.

Three cases of malignant tumors of the chorion are reported by Gebhard (*Bulletin de la Société Belgique de Gynécologie et d'Obstétriques*, No. 6, 1898). In all the cases the tumor originated from the epithelium of the villi, and both the syncytium and Langhans's layer participated in the formation of the growths. Gebhard agrees with Marchant that the protoplasm comes from the syncytial covering of the chorionic villi, while the cellular element comes from Langhans's layer. These recent investigations still further confirm the theory that the uterine epithelium is converted into a syncytium of a malignant nature. According to Gebhard the diagnosis of malignant syncytioma is not easy, and during pregnancy a true carcinoma is often encountered, which, while closely resembling syncytioma, has no relation whatever to this disease.

GYNECOLOGY.

UNDER THE CHARGE OF

CHARLES BINGHAM PENROSE, M.D.,

ASSISTED BY

H. D. BEYEA, M.D., and H. L. WILLIAMS, M.D.

Carcinoma of the Uterus.

Pilcher (*Annals of Surgery*, April, 1898), in a study of cases of disease of the female generative organs personally treated during ten years in the Methodist Episcopal Hospital, in Brooklyn, furnishes some very interesting observations upon cancer of the uterus. During this time twenty-five patients were met with suffering from carcinoma uteri, only four of whom were under 40 years of age. Four cases occurred in women between 60 and 70. The period between 40 and 60 presented the remaining seventeen. Of these women all but two had borne children.

In five cases the primary seat of development was in the body of the uterus, the remaining twenty having originated in the cervix. Of the latter cases—in 40 per cent.—the disease had already extended into the broad ligament, vagina, and adjacent tissue, so that radical operation seemed manifestly useless,

and the treatment was limited to curetting and applications of chloride of zinc. Of the remaining twenty cases, seven were subjected to abdominal hysterectomy and five to vaginal hysterectomy, one death occurring among those in which the abdominal route was followed.

For the vaginal method of operation those cases were selected in which the disease was most limited, and in which the least likelihood existed of extension into the adjacent tissue.

The subsequent result clearly demonstrated the frequent inadequacy of vaginal hysterectomy, even in those cases in which the carcinomatous degeneration was entirely restricted to the uterus. For in the five cases operated upon by the vaginal method in three instances a rapid recurrence occurred in the broad ligament, stump, or vaginal cicatrix, death occurring at five months, twelve months, and eighteen months after operation.

Pilcher now believes that had a more extended operation been performed, which could have been safely effected through an abdominal incision, a higher percentage of recoveries might have been effected. And holds as an opinion that in all cases of carcinoma of the uterus the combined method of attack should be employed; that with the uterus should be removed a liberal zone of the attached vagina; that the incision from below should extend as far away from the uterus as the integrity of the bladder, ureter, and rectum will permit, while from above the removal should include the whole of the broad ligaments, the round ligaments, and particularly the lymphatic nodules at the brim of the pelvis, and chain of lymphatics extending from them to the cervix. He also holds that even when it becomes evident in the course of the operation that all the diseased tissue cannot be removed, a delay of return may be greatly prolonged by ligation of the internal iliac artery.

Of the five cases of carcinoma of the body operated upon by the combined method one died as an immediate result of the operation. Of the other four, two were entirely free from the disease two years after operation; one case was not followed, and the remaining case, though in good health three years after operation, had a manifest return of the growth in the stump of one of the broad ligaments, and enlargement of the inguinal glands.

Influence of Menstruation upon Insanity.

Nache (*Archiv für Psychiatrie*, February 18, 1898) has made an analysis of ninety-nine cases for the purpose of studying the influence of menstruation upon insanity. Of this number fifty-seven were cases of paranoia, twenty-three of hallucination, twelve of mania or melancholia, and seven of idiocy. No case was observed during less than four periods, and 73 per cent. of the cases were studied during from eight to fifteen periods.

Näche found that in sixty-seven cases the menstrual period exercised no influence whatever upon the mental condition. In sixteen cases the influence of menstruation in the psychic condition was doubtful, while in the remaining sixteen the influence was positive. In those patients in whom a direct influence was observed the manifestation consisted of increased vasomotor pressure, increase of hallucination, restlessness, and, in a few cases, erotic impulses. The author comes to the conclusion that the menstrual function in the insane differs in no essential respect from the same process in healthy women, and its influence upon the psychic condition is slight and variable.

Perforation of the Uterine Wall by the Curette.

Glaesser (*Centralblatt für Gynäkologie*, No. 6, 1898) describes a case which illustrates the ease with which the uterine wall may sometimes be perforated, and the danger of using the curette in such instances. A woman, who had been confined three months previously, was suffering with menorrhagia, for the relief of which a curettement was proposed. The anterior lip of the cervix was drawn down and a sound gently introduced, which entered without any sense of resistance, as far as the handle. This proceeding was repeated several times, on the supposition that the sound had entered one of the dilated tubes. But as profuse hemorrhage followed, the operator concluded that he had perforated the wall of the uterus, and therefore at once performed a vaginal hysterectomy. On examining the specimen four holes were found in the fundus, through which the sound had passed. The uterine wall was so soft and friable that the finger could be readily passed through it.

[It is to be regretted that no report of microscopical examination was made, as it is more than probable that a malignant degeneration was present, the case resembling closely the symptoms found in the so-called "deciduoma malignum."]

PATHOLOGY.

UNDER THE CHARGE OF

JOHN GUITÉRAS, M.D.,

ASSISTED BY

DAVID RIESMAN, M.D.

Metabolism in Acute and Chronic Leukemia.

Magnus-Levy (*Virchow's Archiv*, Band clii, Heft 1, 1898) has made comparative studies of the metabolism in three cases of acute and two of chronic leukemia, and has found striking differences between them. The acute cases were characterized by excessive elimination of uric acid (in one case the enormous quantity of 8.72 grammes in a day), great losses of nitrogen, and large amounts of urine, all increasing up to death; in the chronic cases there was an approximate nitrogen equilibrium, moderate quantity of uric acid, no antemortal increase. The contrast is readily explained: the excessive tissue-destruction in the first group is an index and a cause of the acuity of the process.

Regarding the relation of the uric acid excretion to the leucocytosis, the author expresses the opinion that there is no parallelism between the number of leucocytes and quantity of alloxur bodies. Though the latter expresses the decomposition of nuclein, this is not entirely confined to the leucocytes in the blood. It might even, *a priori*, be an expression of increased vital energy or of abnormal processes in functionating cells that are not hastening towards death, as well as an index of cellular destruction and rapid decomposition. Furthermore, too much importance may have been attached to the leucocytes in the blood, when the liver and spleen contain so many more of these cells.

An interesting fact, of wide bearing, is the demonstration that the loss of albumin in the acute cases, indicated by excessive N-excretion, was connected with loss of blood from hemorrhage; the author cites a similar disturbance in the N-equilibrium in a case of purpura hæmorrhagica.

The excretion of phosphorus in the urine in acute leukemia was greatly increased in the author's cases, and this increase is attributed, very properly, it would seem, to the excessive breaking-up of nuclein, which contain from 3.2 to 9.6 per cent. of phosphorus.

The blood contained in the leukemic cases a large quantity of uric acid, considerable hypoxanthin, and traces of xanthin.

The Place of Formation of the Cholera Antibodies.

R. Pfeiffer and Marx (*Zeitschrift für Hygiene und Infectionskrankheiten*, Band xxvii, Heft 2, April, 1898) accept Ehrlich's ingenious hypothesis of the formation of antitoxins, which, it will be remembered, is that the antitoxins are formed by the same organs which have a specific affinity for the molecules of the toxins. The antitoxin, according to Ehrlich, is nothing else than that cell-constituent which combines with the toxin. Through the combination of the toxin-molecule with the "toxophorous" lateral chains of the cell-protoplasm a deficiency is produced which acts as a stimulus, and leads to the excessive formation of the used-up substance, whereupon the surplus of this substance enters the blood and acts as an antitoxin. The experiments of Wassermann lend distinct support to this theory. But Pfeiffer and Marx do not think that the theory explains the formation of specific antibodies,—*i.e.*, bactericidal bodies. There is no reason to think that the cholera antibodies exist performed in the normal organism.

Their experiments were designed to reveal the place of formation of these substances, the starting-point of their researches being the fact that a single injection of a dead culture of cholera vibrios into strong young rabbits is followed, in the course of a few days, by a marked specific blood-change.

They first investigated the question as to whether the leucocytes were the bearers of the bactericidal substance or not. Without detailing their interesting experiments, suffice it to say that neither the leucocytes of the blood nor those of inflammatory exudates are the carriers of the protective bodies.

They then studied the activity of the juices of various organs, and found that the spleen, bone-marrow, lymph-glands, and, possibly, the lungs, contained larger quantities of active substances than were demonstrable in the circulating blood. The spleen, indeed, had active power before the blood showed any bactericidal action. Removal of the spleen did not interfere with the prompt development of bactericidal bodies, probably, the authors think, because other organs (marrow and lymph-glands) unfolded a vicarious activity.

Further Reports on Gonococcus Culture and Gonococcus Toxin.

A. Wassermann (*Zeitschrift für Hygiene und Infectionskrankheiten*, Band xxvii, Heft 2, April, 1898) makes a further contribution to this subject. Using the simple medium devised by himself (nutrose-hog-serum bouillon or agar), he has succeeded in cultivating the gonococcus with ease, and has directed his attention to a study of the toxic effects of the micro-organism.

The gonococcus is pathogenic for mice, guinea-pigs, and rabbits, but does not cause infection, only an intoxication. Whatever multiplication takes place is due to the growth of the micro-organism in the medium injected with it; in the body as such it does not multiply. Yet the animals die, and it is only in the acute cases that gonococci are found in the peritoneal cavity at death. This points to the action of a toxin. This is further proved by the fact that a liquid culture of gonococci sterilized by heat produces the same phenomena as the living culture. The poison—*gonotoxin*—is contained in the bodies of the bacteria, not in the culture medium, except in old cultures, in which the small quantity of toxin present can be explained by the decomposition or solution in the medium of dead bacteria.

The toxicity of the gonococcus is very variable; the toxin is highly resistant, however, and is not destroyed by precipitation with absolute alcohol nor by prolonged heating to 100° C.

Injected subcutaneously into human beings the toxin produces a painful induration, with a slight rise of temperature, malaise, and joint-pains, all symptoms disappearing in two days. Immunity could not be produced, neither in man nor in animal. When the toxin is injected into the eye of a rabbit, it produces opacity of the cornea, hypopyon, and at times total loss of the eye.

In the concluding section the author endeavors to explain some of the clinical problems, especially the infectiousness of chronic gonorrhea, from the exudate of which gonococci may be absent. After a period of active growth the organism ceases to thrive, both on mucous membranes and in artificial cultures. This cessation is not due to exhaustion of the culture medium, as another gonococcus culture inoculated or transplanted will grow actively. The cause of this peculiarity is not known, but in the case of mucous membranes, in the crypts and recesses of which a few gonococci often persist for a long time, some slight irritation or trauma may be sufficient to cause the germs to reappear in great numbers. At their death, toxin is liberated. This may occur in a joint or in a cavity—as in cases of ascending gonorrhea in women—walled off by inflammation, and may give rise to repeated accesses of inflammation. Depending upon the exact period of operation in such cases, few or many gonococci will be found.

MISCELLANEOUS.

Conferences of State and Provincial Boards of Health of North America.

The Thirteenth Annual Meeting of the Conference of State and Provincial Boards of Health of North America will be held in Detroit, Michigan, August 9, 10, and 11, 1898.

The "Quarter Centennial Celebration of the Establishment of the Michigan State Board of Health" will be in progress at the above-named time. This will, undoubtedly, add greatly in every way to the success and profit of the conference. The usual conference work will

begin on the morning of August 10. Head-quarters will be at the Cadillac Hotel. After the meeting it is expected that the sanitarians from outside of Michigan will be given free transportation to various summer resorts. Therefore it is hoped that all will come prepared to spend at least a week in Michigan.

The first day, August 9, will be given to meeting with the Michigan Quarter Centennial Celebration in effecting organization and hearing reports of committees.

The second day will be given to the subject proposed by Dr. Baker, of Michigan, as follows: "Each State and provincial board of health has some principal line of work which reaches nearer perfection than does the work of any other board along that particular line. I therefore suggest that the topic to be presented by all the boards represented at the conference be as follows: What are the principal lines of work of your board? How is each accomplished? What modification, if any, does the experience in your State suggest?"

Every board represented in the conference is expected to present, through its delegate, written replies to the above questions so far as it can. These reports and discussions and reports of committees will consume the time of the morning, afternoon, and evening sessions of August 10.

The third day, August 11, will be given to discussion of the various phases relating to the restriction and prevention of tuberculosis. The phases proposed are:

(I) *Etiology.*—(*a*) Direct cause, tubercle bacilli; (*b*) indirect causes: (1) inherited predisposition; (2) depressed physical condition from bad hygiene, lack of physical culture, other diseases making favorable soil, etc.

(II) *Morbid Anatomy.*—(*a*) Showing its multifarious lesions affecting almost every organ of the body. [NOTE.—It seems proper to discuss this phase because the general public knows little of the ravages of tuberculosis except concerning the lungs.]

(III) *Statistics.*—Showing the proportion of: (*a*) Pulmonary diseases in man due to tuberculosis; intestinal diseases in man due to tuberculosis; diseases of bone and joints due to tuberculosis; diseases of kidneys due to tuberculosis; diseases of skin due to tuberculosis; diseases of nervous system due to tuberculosis; diseases of lymphatic system due to tuberculosis.

(IV) *Identity of tuberculosis in man and animals and its wide distribution among the latter; also its communication to man through food.*

(V) *Economic Phases.*—(*a*) What is the annual pecuniary loss in the United States due to tuberculosis in man and animals? (*b*) Does it, in any way, interfere with commerce and the public defence?

(VI) *How may Tuberculosis be prevented?*—(*a*) Care of expectoration; (*b*) disinfection of houses, public buildings, cars, and steamboats; (*c*) prevention of sale of tuberculous milk and meats; (*d*) ventilation and out-door life; (*e*) reporting cases; (*f*) how may the objections of physicians and people to reporting tuberculosis be overcome? (*g*) State and municipal care.

A programme with the names of the readers of papers on the above subjects, and the names of those who will be specially prepared to discuss said papers, will soon be ready for distribution. General discussion of all papers will follow the specially prepared discussions.

CORRESPONDENCE.

THE MAKING OF ARTIFICIAL NAUHEIM BATHS.

To the Editors of the University Medical Magazine:

Dear Sirs,—Kindly permit me through your columns to correct what is believed to be erroneous teaching in regard to the making of artificial Nauheim baths. In the treatment at Nauheim, it has been shown that one of the good effects of the natural "Sprudel baths" is the result produced on the skin; the water as it comes from the spring is highly charged with carbonic acid gas, and independent of its salts is very pungent, thus causing an irritation of the skin and nerve endings, thereby producing one of the good physiological effects observed.

It has been further observed in the carbonated water that a much lower temperature can be borne, due to the sense of warmth produced by the acid, than in the plain salt bath. An attempt has been made, by a chemical decomposition of salts in the water before and during the baths, to produce the same results. In the February number of the Magazine, Mr. Smitheman, a medical student, shows and describes a very ingenious arrangement to conduct condensed gas from a cylinder through a tube and allow it to be distributed through the bath. As has been shown, water can only be carbonated and made pungent under high pressure; it can thus be seen that by attempting to charge water by decomposition of salts, or allowing the gas to pass through it from a tube will be without effect, and to charge the bath in this manner is not only useless, but has its annoyances, thus if you charge it before entering the bath, the gas will all pass off.

If an attempt to charge during the bathing, patients might become asphyxiated by inhaling too much gas. There is but one way of making an artificial bath that cannot be questioned,—that is, to mix the carbonic acid gas with water under pressure and at the same time to know how much acid is in the water, so that you can gauge the strength of the bath.

George L. Romine, M.D.

Lambertville, N. J.

BOOK NOTICES.

A Text-Book on Surgery. General, Operative, and Mechanical. By John A. Wyeth, M.D., Professor of Surgery in the New York Polyclinic Medical School and Hospital, etc. Third edition, revised and enlarged. New York: D. Appleton & Co., 1898.

Those familiar with the former editions of Wyeth's Surgery will recognize in the present one almost a new work. In the effort to record the important advances in surgery since the publication of the second edition, in 1890, much new matter had to be added. To accommodate this without unduly increasing the size of the book every chapter has been revised, and much matter that could be spared with least disadvantage was eliminated.

The first six chapters are devoted to surgical pathology, in which are discussed inflammation and the processes of repair and the specific surgical affections. Two chapters are devoted to remarks on surgical dressings, sterilization, asepsis and antisepsis, and anesthesia. The succeeding sections treat of hemorrhage, wounds, burns, skin-grafting, frostbite, furuncle, carbuncle, ulcers, and gangrene. A chapter is devoted to bandaging and another to amputations. Three chapters deal with diseases of the lymphatic vessels and glands, veins, arteries, and aneurism, including ligations. Lesions of the bones and joints and the various operative measures employed in their treatment is next described. Chapters XVIII to XXIX, inclusive, are devoted to regional surgery; Chapter XXX to deformities and their correction, and the final chapter to tumors.

There is at the present time a lively competition between systems and works of composite authorship, on the one hand, and the productions of single authors on the other. There is much to be said on both sides. Each class has its uses; we could not spare either without a distinct loss. The unprecedented activity of the publishers at the present time renders it necessary for the practitioner to exercise discrimination in making his purchases, as it would be neither possible nor profitable to secure every new book on a given subject. In a

general way, it may be said that one good system and two or three of the best modern text-books should be a satisfactory collection on any subject.

In this volume, as is the case with all works of single authorship, the individuality of the author is a prominent feature. The matter is up to date and well presented. The section dealing with amputations is one of the best, and the portions devoted to the surgery of the head and of the abdomen deserve mention.

The criticism might be made that in some instances the treatment is not as fully described as would be desirable. This seems to be the case especially in the discussion of syphilis and hypertrophy of the prostate. There are no less than 938 illustrations, many of which are in colors. Most of these are excellently executed. Figures 624 and 625 have been evidently accidentally transposed as the steps of the operation and the legends show. The illustrations of Sylvester's method of artificial respiration may be said to be very poor. The author would do well to have these redrawn in the next edition. The index seems very complete. The work of the publishers has been very well done.

Annual and Analytical Cyclopædia of Practical Medicine. By Charles E. de M. Sajous, M.D., and one hundred associate editors. Volume I. Philadelphia, New York, and Chicago: The F. A. Davis Company, 1898.

Few medical works have had a wider distribution than the Annual of the Universal Medical Sciences, published first in 1888, and annually since that time. It was issued to enable the profession to keep in touch with the literature of the year, and particularly for those who did not have ready access to the large medical libraries now to be found in a few of our great cities. To those engaged in literary work, the Annual soon came to be highly appreciated. That it did not satisfactorily meet the requirements of the general practitioner, however, the editor is now convinced. The difficulty appeared to be that the review of the year's literature did not give a complete account of the subject, as only such topics as had been written upon during the year were noticed.

In the present work, which will be complete in six volumes, Dr. Sajous believes, will be found the remedy for the dissatisfaction that has existed. It will appear at the approximate rate of one volume each six months, the whole alphabet being thus covered in three years. Instead of presenting the excerpts from the year's literature, arranged in order under a general head as before, each disease, including its subdivisions,—etiology, pathology, treatment, etc.,—is described in full, and the new features that the year has brought forth are inserted in their respective places in the text. The work, when completed, will present all the general diseases described in text-books on practical subjects. The usually accepted views appear in one style of type, while the debatable points immediately follow in a different type.

The companion publication of the new Annual—the Monthly

Cyclopædia of Practical Medicine, the contribution of the Universal Medical Journal—will be sent free to all subscribers to the Annual. The Cyclopædia is divided into four sections: the first will contain reviews of some of the more important contributions of the year, the second section will discuss questions thought by the editor to merit special attention, the third will contain brief reviews from current literature, and the fourth will be devoted to book-reviews.

The subjects in the Annual are arranged in alphabetical order. The first volume begins with injuries of the abdomen and ends with Bright's disease. The scope of the work will be sufficiently indicated by stating that the article on abdominal injuries contains 163 excerpts from articles, in addition to the general text, while that on appendicitis contains over 300 references. All of the new synthetical chemicals have been noticed. A very full discussion of the subject of animal extracts, which just now are claiming so much attention, occupies over fifty pages. The work contains a number of illustrations, some of which are colored. The binding is attractive, and the paper and printing much better than appeared in the old Annual.

Skiascopy and its Practical Application to the Study of Refraction. By Edward Jackson, A.M., M.D. Second edition. Philadelphia: The Edwards & Docker Co., 1896.

This is a valuable book for ophthalmologists and practitioners in general. The subject is fully treated in a very plain and concise manner. That part which treats of the linear shadow in astigmatism and that on the reversal point being particularly plain.

Vade Mecum of Ophthalmological Therapeutics. By Dr. Landolt and Dr. Gygax. Philadelphia: J. B. Lippincott Company, 1898.

This little book contains much useful information, but, like all such, does not go far enough.

The Menopause. By Andrew F. Cumer, A.B., M.D. New York: D. Appleton & Co., 1897, pp. 309.

The menopause is a period in a woman's life which has been long largely neglected, and, in fact, not generally well understood. As Dr. Cumer has said, Tilt's work was the last English publication upon the subject, and it is now long out of print. It is fitting, therefore, that the veil of mystery which hangs over the climacteric should be lifted in the light of modern gynecologic teaching, and this the author of this little volume has ably done. The menopause should not be re-

garded as an epoch of danger to the woman, as has been generally taught. It is as natural a process as is puberty or menstruation. Hemorrhage at this period is to be regarded as suggestive of some associated pathologic condition, and not as a normal manifestation. Cumer has carefully and exhaustively studied his subject, and has presented his conclusions in an able and taking manner. Especially valuable is the closing chapter of the management of the menopause, which we think he improperly calls the "treatment." A normal condition requires management only and not treatment. Premature menopause, retarded menopause, and the causes and phenomena of the climacteric are some of the additional aspects that are considered. The book is an interesting addition to the library table.

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MEDICAL MAGAZINE.

JULY, 1898.

A CASE OF FUNCTIONAL TREMOR SIMULATING DISSEMINATED SCLEROSIS.

By Wharton Sinkler, M.D.,

PHILADELPHIA.

F. W., aged 25 years. *Family History.*—Mother died of liver-disease; father is living and well. Has four brothers and three sisters, who are in good health. There is no history of nervous disease in the family. Patient has always had excellent habits, and has never had any venereal disease. He was a clerk in his father's office, and his work was close and confining, being employed from 7 A.M. until 6 P.M., and he had but little exercise. About the middle of August, 1896, he noticed what he called "a string-halt gait" in his right leg. The physician who saw him sent him to bed. In September, 1896, he became engaged to be married. After he had been in bed for several weeks—that is, about December 1, 1896—he became oblivious to his surroundings. He was not unconscious, for he remembers that he recognized persons, and knew that his intended wife was in the room every day; also that the doctor came, but he did not know nor care whether it was night or day. He could hold a fairly clear conversation when necessary. On December 23, 1896, he was told the date, and seemed then to awaken to his surroundings, and determined to go down stairs to dinner on Christmas. His gait was then normal and he went about fairly well. Soon after this he went to a sanitarium at Atlantic City, where he followed principally an out-door life, and while there a tremor in the left arm developed. It was worse on voluntary effort or motion, and was coarse and rhythmical. The leg was also affected, so that it was stiff and awkward in walking. His speech

began to be disordered at this time; it was slow, halting, and measured. He remained at the sanitarium for some weeks, but became continuously worse and returned home in the spring of 1897. He was then unable to walk on account of the stiffness and weakness of the left leg. His left arm was so much involved that he could not use it for any purpose. Any attempt at voluntary effort caused extreme tremor. The right internal rectus muscle was paralyzed, producing internal squint. After he had been at home for a short time the left arm and leg became better, and as improvement progressed in the left side the right arm and leg became affected. He was admitted to the Orthopedic Hospital and Infirmary for Nervous Diseases in November, 1897. At that time he was able to walk, but required some assistance, as there was very considerable incoördination, and a tendency to pitch to one side. The left arm and leg were apparently normal. He shaved himself with the left hand, and used this hand for writing. The right arm and leg were quiet when at rest, but any attempt to use the hand for any purpose brought on violent tremor, which increased and became wider and wilder as the effort to use it was persisted in. For example, if asked to shake hands with you, as soon as he attempted to touch your hand his own became violently agitated, and beat up and down vigorously. If you seized the arm the tremor became less violent and subsided into a fine tremor. In attempting to walk, the right leg was somewhat jerked about. The knee-jerks were grossly exaggerated, but there were no arm-jerks; the expression was rather blank, but there was no facial paralysis; eyes were normal as to muscular balance; the speech was distinctly scanning, slow, and drawling, and the patient was easily moved to laughter or tears. His mental condition was not up to the average. He slept well, had a good appetite, and spent a good deal of his time in reading, but he read slowly, and it took a long time for him to finish a book. An examination of the eyes, made by Dr. de Schweinitz, was as follows: "Excursion of eyes not limited; pupils normal; fundus as usual in myopia,—that is, semiatrophic; crescents above outer side of disk and superficial choroidal change; no swelling of disk; vision, right, 20/70; left, 20/200; minus 4, D. 5." Second examination of eyes: "Both disks myopic about 5 D.; pupils normal; general movements of eyes normal; right eye disk of good color; some general choroidal disturbance; left eye, outer half of disk of pallid color; choroid disturbed; form fields normal; red fields somewhat contracted; no scotoma; part of poor vision is due to inaccurate glasses. There are no localizing signs." The patient was ordered iodide of potassium in ascending doses and massage.

November 29, 1897.—It was noted that the condition of the patient

is somewhat better. The tremor is slightly less in the right hand; speech is still hesitating, and when the patient is disturbed there seems to be an internal squint.

December 12, 1897.—The patient was allowed to go out to walk for a couple of squares daily. After a few days he became so much more nervous that it was almost impossible for him to walk; his legs shook violently, and on one occasion he had to be assisted back to the hospital by a passer-by. The tremor of the right side is also increased greatly, and the character is somewhat changed, so that while the arm is at rest there is a continuous tremor resembling somewhat the "pill-rolling" tremor of paralysis agitans. There has now developed a definite tremor in the left hand. The tremor is increased now to such an extent that he is unable to feed himself, as he sticks himself with the fork if he attempts it. The mental condition of the patient does not seem to be as good as it was, and he seems rather silly and childish, with slow cerebration; waiting, at times, for several seconds before he attempts to answer the simplest question. Potassium iodide was discontinued. Was ordered barium chloride, one-quarter grain, *t. i. d.*, and tincture of hyoscyamus, one-half drachm, *t. i. d.* Dr. A. G. Thomson examined the eyes to-day, and reports: "Pupils react normally; disk and fundus same as at last examination,—normal; excursion of eyes good; has by rapid covering and uncovering diplopia and high esophoria with phorometer."

Shortly after this date Dr. Rhein attempted to hypnotize the patient, but he succeeded only partially after several attempts. On one or two occasions he slept for an hour or more after the *séance*. The patient asserts that Dr. Rhein will not be able to hypnotize him, as a "professional" in Pittsburg had told him that it could not be done. The patient also remarked that if he is not cured by next July he will commit suicide. He is now very much depressed about his condition, especially as it is necessary for him to be fed on account of the tremor affecting the left hand as well as the right.

The patient greatly improved after this time, and by January 1 became able to feed himself again with the left hand. He was ordered Paquelin's cautery to the back of neck, and he thinks that this benefited the tremor greatly.

January 29, 1898.—It was noted that the patient had improved very much; that he could walk a little; that he now fed himself, and was in a far better mental condition. He seemed to appreciate everything; was less emotional, and more prompt in answering questions; but his speech is still scanning.

March 2, 1898.—Patient returned home. His condition is now better than it was in December, but not quite so good as when he first

came to the institution. There is no tremor while the limbs are at rest, but an attempt at any movements with the right arm or hand brings on an exaggerated tremor. He can occasionally, after an attempt, place his hand in yours, but he does not always succeed. He walks fairly well with some one beside him who merely steadies him. The patient's general condition is good. He has gained about twenty-five pounds in weight and eats and sleeps well.

April 25, 1898.—A letter from the patient's father, dated April 23, 1898, gives the following account of the patient's condition: "In some respects he is considerably better than he was when he came home. He thinks that he is much better, and is in good spirits, and thinks he is getting well fast. [This, however, has always been the case with the patient.] I can see no improvement in the tremor in his right arm, and not much in his left. He has control of his tongue. His legs and body generally are much improved. There is great difference in it at times; some days he is much steadier than others. He spends most of his time in a pleasant way on the porch or in walking up and down the square. After sitting awhile, reading, he will start out for a walk with his hand in his pocket to steady his arm. A person without watching him closely would not notice that his gait was not perfectly natural. If he meets a friend, he will get excited from talking to him, and when he starts off again the steadiness has left him, and the staggering gait returns. I also notice that what he reads affects his emotions materially. A book does not affect him; a newspaper affects him so that it is with difficulty he can hold the paper steadily enough to read. I have also noticed that he is not so much affected by the presence of females as he was formerly."

The question of diagnosis in this case has been a difficult one. Were it not for the transfer of the tremor from the left to the right side we would have no hesitation in pronouncing the case one of disseminated sclerosis, because all of the cardinal symptoms of this disease have been present with the exception of nystagmus. The patient has had muscular weakness of hemiplegic form, with paralysis of the sixth nerve; and intention tremor was well marked; the knee-jerks were grossly exaggerated; speech was distinctly disordered, and the staccato utterance was pronounced; the patient was also emotional, readily moved to laughter or tears, as is so common in disseminated sclerosis. On the other hand, the complete disappearance of the intention tremor and incoördination, from the left side, and the simultaneous appearance of the disorder on the right, made it seem improbable that the disease was the result of the structural changes which are known to exist in multiple sclerosis. Then the question of hysteria naturally presented itself, and a careful study of the case

was made from this stand-point. There were no alterations of sensibility, however, and the visual fields showed no changes which are typical of hysteria. The fact that the patient was insusceptible to hypnotism proves nothing, as hysterical patients are notoriously difficult to hypnotize. Again, the patient's improvement during the past three months indicates that the disorder is due to some functional changes in the cortex, possibly of vascular character, or it may be some nutritional disorder, affecting the cortical cells. It must be borne in mind, however, that in disseminated sclerosis the patient's condition is greatly influenced by the emotions. It is a matter of common observation that a patient suffering from this disease may be comparatively quiet and steady when not disturbed by any mental impression, but if he is excited or agitated in any degree his tremor at once becomes greatly augmented. It is also to be remembered that in disseminated sclerosis remissions take place, and there are periods in which the tremor is much lessened, either as a result of treatment or without it. I recorded a case some years ago in which there was well-marked intention tremor with other symptoms of disseminated sclerosis, in which the tremor disappeared permanently under the administration of barium chloride for several weeks.

The Disinfection of Rooms.

Novy and Waite (*Medical News*, May 21, 1898) conclude a paper upon the above subject with the following general directions:

(1) All cracks or openings in the plaster or in the floor or about the door and windows should be caulked tight with cotton or with strips of cloth.

(2) The linen, quilts, blankets, carpets, etc., should be stretched out on a line in order to expose as much surface to the disinfectant as possible. They should not be thrown into a heap. Books should be suspended by their covers so that the pages are all open and freely exposed.

(3) The walls and floor of the room and the articles contained in it should be thoroughly sprayed with water. If masses of matter or sputum are dried down on the floor they should be soaked with water and loosened. No vessel of water should, however, be allowed to remain in the room.

(4) One hundred and fifty centimetres (five unces) of the commercial 40-per-cent. solution of formalin for each 1000 cubic feet of space should be placed in the distilling apparatus and as rapidly distilled as possible. The key-hole and spaces about the door should then be packed with cotton or cloth.

(5) The room thus treated should remain closed at least ten hours. If there is much leakage of gas into the surrounding rooms a second or third injection of formaldehyde at intervals of two or three hours should be made.

EXTRAUTERINE PREGNANCY.[1]

By Mordecai Price, M.D.,

PHILADELPHIA.

I appreciate that courtesy of yours to which I am here in response, and I further appreciate the responsibility which attaches to addressing young men about to cross the threshold into the active duties of one of the most important, responsible, and difficult of professions. There should be no uncertainty, nothing equivocal, in the voice that would give wise and safe counsel, the lessons conveyed should be those of clinical or bedside experience.

However well taught, however carefully and judiciously you may cull and treasure up the lessons of text-book and lecture, and those of your experience as you go along, you will ever be having very much to unlearn. The literature of extrauterine pregnancy is abundant, very much of it is theoretical, speculative, merely huddled conjectures. There are associated with the accident many disputed problems.

Our advances in abdominal surgery and the revelations of the post-mortem have cleared away some of the pathological difficulties; as to others we yet only theorize, must work and wait for better light. For the sake of the truth we should not dogmatize.

Along all lines, medical and surgical, our views are modified by our experiences. However positive may be our views along any given line, it is certainly well to take into consideration the possibility of being mistaken. There is good counsel in a letter of Oliver Cromwell to the General Assembly of the Kirk of Scotland, "I beseech you, brethren, by the mercies of God, conceive it possible that you may be mistaken."

As a rule, these cases first come under the observation of the general physician and obstetrician, and not that of the abdominal surgeon. To the general practitioner falls the task of making the first diagnosis. He should recognize that the condition is a perilous one, always urgent. Doubtless, even with the light of our present experiences, very many of these cases are not diagnosed and not treated surgically, the only way in which they can be treated successfully; they are left to die, and many do die.

The condition is too frequently unrecognized, is called something

[1] Read before the John B. Deaver Surgical Society of the University of Pennsylvania, April 15, 1898.

else, and the patient is permitted to perish after a little opium or palliative treatment. Some, unquestionably, do recover.

We must first diagnose pregnancy, and then whether the condition is normal, or whether there is reasonable evidence or not of an extrauterine pregnancy.

The abdominal surgeon rarely sees the patient before rupture takes place. Abdominal sensations, severe pelvic pain, and hemorrhage from the uterus may not alarm the patient, and in many instances, before the primary rupture occurs, there is not even a suspicion of pregnancy. It is when rupture takes place that the patient, family, and family physician recognize the peril of the situation.

In all these cases the mother's life is the one consideration; it should not be jeopardized for the sake of the fetus.

I cannot better define this condition than that it is an impregnated ovum gone wrong. The question as to how it occurs and why is a disputed one. It is evidently caused by some disease or abnormal condition of the tube. It is the teaching of the best authorities on the subject that from some disease of the tube the impregnation takes place in the tube instead of the womb, and as soon as impregnation takes place the ovum fastens on tissue necessary to preserve its life.

Mr. Tait advances the idea that extrauterine pregnancy is caused by whatever removed the ciliated epithelium from the Fallopian tubes.

It has been claimed by numerous operators that it may adhere and develop anywhere in the abdomen; from my own experience I can say that I have never seen other than the tubal cases, those beginning in the tube.

It is reasoned by some that the ordinary signs of pregnancy being present in addition to the pelvic distress and pain on one side should warn us that the pregnancy may be displaced. If, with such symptoms, there is a bloody discharge, it indicates either an abortion or a ruptured tubal pregnancy. I believe that as soon as the rupture takes place the symptoms of hemorrhage follow, and all such cases should be most carefully examined for an extrauterine pregnancy. In my experience the hemorrhage does not occur before rupture.

In discussing the subject Mr. Tait says: "A tubal pregnancy is bound to rupture in the free part of the tube; it rarely delays beyond the twelfth week and may be as early as the fourth; in the interstitial part of the tube from the third to the twentieth week. This rupture takes two directions,—into the peritoneum, which is the fatal form; and into the cavity of the broad ligament. The latter, or extraperitoneal, alone gives all the cases which go on to the period of viability, all the lithopedia, all the suppurating cysts discharging into the bladder, rectum, vagina, and abdomen, and also all cases which by second-

ary rupture of the broad ligament into the peritoneal cavity are called abdominal pregnancy."

I quote from Mr. Tait because I have great respect for his teaching; in about all we do in abdominal surgery we all follow his teaching, very many without giving the credit due him, but as to the opinion I quote as credited to Mr. Tait I must differ. My own experience in extrauterine pregnancy has led me to adopt an entirely different view from that expressed by Mr. Tait. I believe that instead of rupture into the broad ligament in nine hundred and ninety-nine out of a thousand cases, the primary rupture is in the peritoneal cavity; and where the case goes to term or the life of the child is prolonged beyond the period of rupture, the tube has ruptured only, and the product of conception has been forced through the rent in the tube encapsuled in its amniotic sac, no child in the early days of fetal life would be protected from the digestive influences of the peritoneum.

The only way an extrauterine pregnancy can go to term is encapsuled in the amniotic sac. The sac is a foreign body in the peritoneum, and adheres to everything coming in contact with it.

The adherent viscera protects as well as nourishes the displaced ovum. In my experience with those which have gone to term or passed the second month the amniotic sac could be demonstrated in every one of them. In over two hundred cases of extrauterine pregnancy, one hundred and sixty-four in my brother's, Dr. Joseph Price's practice, and sixty some odd in my own, I have never seen a case develop in the broad ligament. The peritoneum would digest a fetus at any age if not protected in some way from its influence. The cases reported that seem to prove that a child can live in the peritoneal cavity were not carefully examined.

The case of Jessop, of Leeds, is in point. In this case there is nothing to show that the child was not encapsuled in an amniotic sac up to a short time before the operation. Nature has definite methods of doing her work. She protects the fetus *in utero* with an amniotic sac. There are all the conditions present in a displaced ovum for the protection and growth of the fetus so far as the product of conception is concerned, if a child can grow in the tube or in the peritoneum, nature must provide the necessary paraphernalia.

If an amniotic sac exists in some, it exists in all. It has been clearly demonstrated to exist in all the cases I have seen.

The possibility of the viability of a child depends not only upon the protection of the fetus by the amniotic sac, but also upon the life of the placenta. If, in the rupture, the placenta has been entirely detached, death to the fetus is certain to follow; but if it retains sufficient hold to preserve its own life and that of the child, it will soon form

new attachments to surrounding viscera, womb, and abdominal wall to insure the life and growth of the fetus.

The symptoms are usually a period of sterility, a missed period, distressing pelvic pains, continuous bleeding, a soft, velvety feel of the cervix as in pregnancy, straining at stool with no result, feeble pulse, intense pallor, sick stomach with a boggy, soft mass in the pelvis, on one side or both, usually on one side, faintness and collapse, with such symptoms we can feel safely sure that extrauterine pregnancy exists with rupture.

The mortality in these cases should not be high,—less than 5 per cent.

In the early months of tubal pregnancy it is rare to find a well-marked abdominal tumor. After the third month there is always a well-defined tumor. The blood becomes encapsuled by irritation of the peritoneum and adherent viscera, an inflammatory barrier thrown out to protect the general peritoneal cavity. If the case has been neglected, this may undergo septic changes, and form an abscess which may be followed by sepsis and death of the patient.

The cases that go to term are those not recognized. The question is, How must we treat extrauterine pregnancy in its different stages? It is a rule to remove everything, and do it at the earliest possible moment after the occurrence of the accident.

In the early months, to the trained abdominal surgeon, there is no operation easier, none that affords more gratifying results.

As the period of the pregnancy advances the surgical questions and dangers increase, until the period of viability is reached, when the danger to both mother and child is very great indeed. Medical history gives only eight or nine recoveries of both mother and child. No woman should be allowed such desperate risks for so small a chance of a living child. The operation, in the early months, requires only a few moments to ligate and remove the diseased tube, placenta, and sac; thoroughly irrigate the peritoneum with warm water (temperature 105° F.), and use a glass drainage-tube.

As the months go on the magnitude of the operation increases; the placenta and sac have formed adhesions which are hard to break, and are usually followed by profuse hemorrhages. Up to the sixth month we have always been able to remove both placenta and sac entire, but have not always been able to stop the profuse bleeding by ligature alone; the gauze pack in some of them has been necessary; it answers the purpose admirably; though it complicates and delays the after-treatment, necessity justifies its use. From the seventh month on, with a living child, the question in the operation is, how to deal with the placenta. Remove it if possible. It is not often possible.

If not, then cut short the chord, clean the face of the placenta, clean perfectly the peritoneal cavity, dry the parts and close the abdomen, and trust to future developments for the removal of the placenta, if required; it may become encapsuled or absorbed. Another method is to leave the abdomen open and pack daily with gauze over the face of the placenta, and wait for the placenta to loosen and come away. My case of extrauterine pregnancy in the tenth month, with living mother and child, was treated in this way.

You can judge of this woman's danger when I tell you that her temperature ranged from 95° to 105° F. for thirty-two consecutive days, when she fell into spurious labor, part of the placenta protruded from the opening, the abdominal muscles over the placenta contracted very much, so the womb contracted to force the placenta from its fastenings. I removed the placenta, which was as large as my hat-rim. The removal was followed by frightful hemorrhage; it was checked by packing the cavity with cheese-cloth, from that time she made a rapid recovery. Now, five years and four months after the delivery, both mother and child are in perfect health.

The interstitial variety, or those cases partially covered with uterine tissue and tube, are the most dangerous variety; many of them perishing of hemorrhage before assistance can be procured. Every hour of delay in this condition is fraught with danger.

It demands prompt, courageous, and skilful operative treatment to save life.

There is no question but that this condition should be recognized before rupture takes place; but it is rarely done, for the reason that the woman rarely suspects anything wrong so early in her pregnancy, and does not consult a physician until after rupture takes place.

Ammonium Chloride in Dysentery.

Attygalle (*British Medical Journal*, May 7, 1898), of Ceylon, speaks highly of ammonium chloride in dysentery. He prescribes drachm doses every four hours, a milk and arrow-root diet being ordered. He has been surprised in the majority of cases at the rapid disappearance of blood from the stools, generally on the third or fourth day, and at the freedom from abdominal pain. In two cases only had he to resort to other treatment, which consisted of small doses of the extracts of opium and cannabis indica dissolved in about a wineglassful of honey and mixed with about a quarter of a fresh bael fruit, which is eaten at the time.

SARCOMA OF THE KIDNEY IN A CHILD OF FIVE YEARS.

By Samuel McC. Hamill, M.D.,

Visiting Surgeon to St. Christopher's Hospital for Children; Instructor in Clinical Medicine, University of Pennsylvania.

I am indebted to Dr. Randolph Faries for most of the facts contained in the clinical history of this case, for the privilege of seeing it during life, and of making the autopsy.

The patient, a girl, was 5 years old at the time of her death, which occurred on the 27th of January, 1896. Her parents, a brother and sister were living and well; her maternal grandfather died of consumption; otherwise the family history was entirely negative. Pertussis was the only disease from which she had suffered. There was no history of renal calculus nor of traumatism.

When she was 3½ years old her mother noticed a peculiarity in her gait, which was described as "a jerking gait," or "a going down on the left side." This was not constant at first, but later on became so. Several physicians who were consulted made a diagnosis of hip-joint disease. On the 19th of September, 1894, she was taken to the Dispensary of the Orthopedic Hospital and the following note was recorded: "About three days ago the mother noticed that the right hip-joint projected and that she seemed crooked about the hips. There is no complaint of pain, but she gets tired and limps some." Diagnosis: "Knock-knee." Up to this time the child had been bright and unusually active, but she now became quiet and disinclined to move about. Aside from this her health was good. In March of the following year, about ten months before her death, her mother observed a small mass, which she described as about the size of a marble, in the left hypochondrium just below the margin of the ribs. The child was not emaciated, nor was there any disturbance of the general health. On the 16th of the following month she was again taken to the Orthopedic Hospital and admitted to the wards. The following note appears in the records of that date: "Sarcoma of the kidney. Parents would not consent to operation." In the index of diagnoses a question-mark is placed opposite the diagnosis. After the child was returned to her home the mass developed with remarkable rapidity, and at the end of three months had attained the size indicated in the photograph marked No. 1. The child was losing flesh rapidly, was suffering severely from dyspnea, apparently due to pressure upon the diaphragm, and voiding urine frequently during the day hours. The

color of the urine never suggested to the mother the presence of blood. From this time emaciation was more rapid; the tumor grew so fast that a few weeks before her death it had reached the enormous size indicated in photograph No. 2. The patient had a slight cough, but there was no hemoptysis. She never had any pain; her appetite was fair up to the time of her death and she never had any vomiting. Occasionally she was constipated, a condition which was readily overcome by enemata.

Fig. 1.

During the last two months of life her dyspnea was very troublesome, and she had moderate edema of the lower extremities. The condition of the patient at the time I saw her, a few weeks before her death, was as follows:

She was able to walk about, and even to go up and down stairs. She was anemic, her skin relaxed, and there were some pigmented areas on the face. She was extremely emaciated, her features drawn,

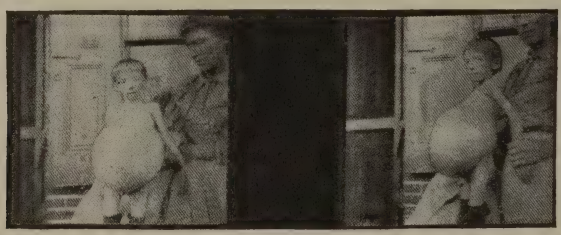

Fig. 2.

giving her face the appearance of old age. Her height seemed normal. The lower extremities were somewhat edematous, and the child was severely dyspneic on exertion.

An examination of the chest showed both diameters greatly increased in the lower portion, especially the antero-posterior. The superficial veins were much distended. The respirations were shallow, rapid, and labored, the lungs were hyper-resonant and showed no auscultatory changes. The apex beat of the heart could neither be seen

nor palpated, nor could the cardiac dulness be determined. Auscultation showed the heart to be displaced upward and to the left. The sounds were clear, the action regular and rapid. The abdomen was marvellously distended, being especially prominent in the left half. It was so dragged down by the weight of its contents that the walls excluded from view the external genitalia. The skin of the abdomen was tense and shiny, and the umbilicus entirely obliterated. The superficial veins were almost unique in their enlargement, the main trunks measuring at least three-eighths of an inch in diameter. Palpation of the abdomen showed the presence of a moderately firm, smooth, painless, rounded, immovable mass, occupying the left upper and a portion of the left lower quadrants. This was apparently separated by an area of less resistance from a similar but somewhat smaller mass occupying the hypogastric and portions of both iliac regions. Percussion elicited a dull sound over both these areas, but in the distinct area of lessened resistance, about two and a half inches in width, the note was tympanitic. This area of tympany entirely separated the two areas of dulness, and extended from the umbilical region to about the junction of the upper with the middle third of Poupart's ligament. It was thought possible that underlying this area of tympany there was a point of union between the two masses,—in other words, that, instead of there being two masses, there was but one.

The right upper abdomen was distended but soft on palpation, and on percussion highly tympanitic. The lower border of liver dulness seemed pushed up beyond the margin of the ribs. Examinations of the urine, made about this time by both Dr. Faries and myself, were entirely negative. The patient's condition continued about as described for the next few weeks, when she developed pneumonia, which proved rapidly fatal.

The clinical diagnosis was a probable sarcoma of the retroperitoneal glands. This conclusion was based chiefly upon the belief that there existed two masses, one occupying the median portion of the lower abdomen, and the other lying to the left of the vertebral column. This fact of itself seemed to exclude all other growths of such size as this.

Autopsy.—This was made twenty-four hours after death. Rigor mortis was present. The body was extremely emaciated. The abdomen was very prominent, especially to the left and below. The overlying skin was tense and shiny, and the umbilicus was entirely obliterated. The lower thorax was increased in both its diameters. The veins of the thorax and abdomen were enlarged. The abdominal wall on median section was exceedingly thin. All subcutaneous fat and muscular tissue had disappeared. It was tightly adherent to the

underlying masses at all points. When dissected away and retracted, instead of two masses, only one huge, kidney-shaped tumor was found. This occupied the entire left half of the abdomen and extended well over into the right lower quadrant. The large dilated descending colon traversed its depressed portion in a direction corresponding to the area of tympany above described, thus giving rise to the diagnosis of two separate growths. The colon was tightly adherent to the tumor, and after encircling its convexity passed behind it and over to the right of the pelvis before descending therein. The rest of the large intestine with the small intestine was crowded into the upper right quadrant. They did not adhere to each other nor to the tumor. There were several ounces of fluid in the peritoneal cavity, which had the odor and appearance of embalming fluid. The right kidney was the size of an adult kidney. It was firm, its capsule was thin and smooth, and stripped readily. On section the kidney was congested, and its pelvis and ureter normal. Its suprarenal body was normal. The bladder was empty and normal in appearance. The descending colon and pancreas were the only abdominal organs adherent to the tumor. The tail of the latter was decidedly flattened from pressure. The absence of adhesions with the other viscera enabled the tumor to gradually push them aside in the process of development. The abdominal aorta was pushed well to the right of the vertebral column. The iliac vessels on the left followed the furrow in the kidney, while on the right they were beyond the reach of the tumor. The mass removed was a huge, irregular, kidney-shaped growth weighing 6850 grammes. Its surface was covered with numerous large veins, its capsule thickened, fibrous and ragged from the adhesions. It was rather elastic to the touch. There were a few nodular areas on the surface, which on pressure were less resistant than the surrounding portions, suggesting the existence of cysts. On section the suspected cysts were demonstrated. There were some small, moderately firm areas in the centre of the mass, which suggested possible remnants of kidney tissue. The balance of the mass was made up of a yellowish-brown brain-like tissue in various degrees of softening. The cystic and softened areas were darker in color, and from them there exuded a small amount of a brownish, odorless liquid. The tumor was rich in blood-vessels, some of which were of unusual size. The pelvis of the kidney showed nothing abnormal. The left ureter seemed normal, but the renal vessels were much larger than those on the right side. The left suprarenal capsule was not found.

Thorax.—The pericardium contained several ounces of clear fluid. There were no adhesions and its surface was smooth. The heart was slightly enlarged. All its cavities contained small chicken-

fat clots, which extended into the vessels. The walls of the left ventricle were thickened, the right was somewhat dilated and its walls thin. The lungs were free from adhesions. There was a small amount of liquid, about one ounce, in each pleural cavity. The left lung was completely hepatized, the seat of a lobar pneumonia, which was the immediate cause of death. The right was congested in its lower portion.

Microscopic Examination.—Microscopic sections showed the tumor to be a round-celled sarcoma of the kidney. There were some spindle cells present, and the tissue was exceedingly rich in blood-vessels. The round cells were small and nearly uniform in size. In sections made from one of the softened areas, the round cells predominated to a greater extent than elsewhere. The cellular elements were embedded in a mesh-work of fibrous bands radiating in every direction. In the sections from the firmer areas these bands were more compactly arranged. There were a few remnants of kidney structure observed in some of the sections.

There are some highly interesting features illustrated in this case. First as to the *etiology*. There is nothing in the history to account for the development of the condition, and its existence must therefore remain unexplained, unless it be accounted for on the theory of Cohnheim that the kidney in the process of development has included within its capsule some embryonic cells from the surrounding tissues.

It is impossible to determine the exact beginning of this growth, but in all probability it was many months before the tumor was first recognized, which was ten months prior to the child's death. At the age of $3\frac{1}{2}$ years (one and a half years before death) she developed a peculiarity in her gait which in all probability was in some way related to the kidney condition. We have therefore fairly definite evidence of the existence of this sarcoma at a very early age. As we have no means of determining how long such misplaced embryonic tissue may remain latent nor the rapidity of development of sarcomatous growths in the kidney in their incipiency, it is impossible to deny such an origin as Cohnheim has suggested for these cases. There have been a number of cases reported in which a tumor existed at birth, and the great majority of cases in the literature have occurred in infancy and early childhood, facts which surely tend to support his view.

The negative result of the urine examinations in this case is interesting and yet not altogether surprising. From the microscopic examination it is reasonable to infer that this kidney was entirely inactive at the time these analyses were made. Had examinations been made earlier in the history of the case the results would doubtless have been different. The negative result, however, had its influence in excluding

a probable growth of the kidney. There was no report of a urine examination in the Orthopedic Hospital records.

Perhaps the most interesting feature of the case, and certainly the most misleading from a diagnostic stand-point, was the relation of the descending colon to the kidney. When the intestine passes over tumors of the kidney of the size of this one, it is usually so flattened out on the surface of the kidney that it gives rise to no tympany during life. In the present instance, however, the descending colon selected for its place of crossing the hilus of the kidney opposite to which there existed a very decided groove or depression. This not only prevented its being flattened out, but even admitted of a considerable degree of dilatation, which gave rise to the distinct area of tympany already described, and led to the error in diagnosis. It is interesting to consider the possible influence of this groove upon the diagnosis had the colon been placed elsewhere. A case of exactly this description, except that the tumor was right-sided, was reported to the London Medical Society by Mr. Linnecar in October, 1849. The groove of itself in his case gave rise to a clear sound on percussion, which led to the diagnosis of two masses.

The absence of constipation in my case was accounted for by the fact that the colon, in passing behind the kidney, followed the inner surface of the ilium over an area upon which there was no pressure; it then crossed over the vertebral column above its point of contact with the kidney, and then descended into the pelvis on the right side. The absence of constipation probably contributed in large part to the prolongation of the child's life.

The tumor was of unusual size, and the comparative comfort which the child enjoyed up to within a few days of her death was truly remarkable.

The Exanthemata of Tuberculosis.

Boeck (*Archiv für Dermatologie und Syphilis*, Band xlii) believes that lupus erythematosus discoides and disseminatus, lichen scrofulosorum, and eczema scrofulosorum etiologically and pathogenetically belong to the same category; and that they are in all probability to be regarded as toxidermia, produced through the influence of tuberculous toxins acting upon certain nerve-centres. Acne cachecticorum and acne scrofulosorum of infants also belong to these exanthemata. There are some other skin affections concerning which it is doubtful whether they belong to this group, such as lupus pernio Besnier, erythema induratum, certain other ulcerative forms which occur, as a rule, upon the legs, and gangrena cachectica infantum. The author regards these exanthemata as of great importance as symptoms premonitory of more serious tubercular affections.

THE EFFECT OF HYPERTROPHY OF THE INFERIOR TURBINAL ON THE NASAL SEPTUM.

By Lewis S. Somers, M.D.,

PHILADELPHIA.

The various theories advocated as to the cause of deviations and spurs of the anterior cartilaginous plate of the nasal septum has prompted the study of 100 cases of hypertrophy of the anterior end of the inferior turbinal, to ascertain whether enlargement of this portion of the nasal chamber has or has not any effect on the anterior cartilage. Traumatism, as slight blows on the nose, especially in childhood, is considered as the cause of deflections in numerous instances and racial characteristics also seem to act as a cause, this being well marked in the straight septum of the negro, while the white race presents deformities in a larger proportion of individuals. The cases studied here represent a consecutive series, all presenting hypertrophy of the inferior turbinal; the septal changes being observed from time to time in each case.

In a study of this nature, the question naturally arises as to whether the hypertrophied turbinal tissue was the effect or the cause of the septal changes. Seiler says "that it is common in anterior hypertrophies of the inferior turbinal to find gradually increasing indentation of the septum and bulging on the opposite side, amounting, in many cases, to deviation." As it is impossible to study this problem from the onset of the nasal pathological changes, we are forced to accept in part the history of the patient as to the subjective symptoms existing before the case came under observation. The history as regards the previous symptomatology is practically the same in all the cases, gradual obstruction of one nasal chamber, then of the other, of irregular but short duration, finally becoming permanent as the vascular changes increased the nutrition of the parts and true hypertrophy supervened. This evidence pointed, in a way, to the original involvement of the turbinal tissue, changes in the contour of the septum necessarily only occurring at a later date, and when the hypertrophy had existed for a sufficient time to direct the inspired air-current against the septum.

The comparative delicate structure of the cartilage, its peculiar position, being wedged in as it were between the horizontal plate of the ethmoid, the nasal ridge of the superior maxilla, and the anterior border of the vomer, predisposes it to changes in shape and position

under comparatively slight causes. In the normal nose we have the air-current entering through the vestibule and passing backward, not being deflected until the posterior wall of the naso-pharynx is encountered. The turbinals become hypertrophied, however, from various causes not here necessary to mention, and the straight column of air no longer exists, as it is on entering the nose immediately deflected against the septum by encountering the enlarged turbinal with its cavernous tissue covering. It will be found under these conditions that the impact of the deflected air-column is directed against the septum opposite the most prominent anterior point of the hypertrophied turbinal, therefore, from the changed topography of the parts, nearly all the foreign matter contained in the inspired air is lodged on the enlarged turbinal and area of the septum directly sustaining the impetus of the atmospheric current. This occurs on both sides, the area of the septum receiving the air-current being directly proportionate to the angle of divergence presented by the amount of turbinal hypertrophy. From the constant irritation of the septum various alterations in the contour of its natural plane surface result, and in the cases forming the basis of this paper five main varieties of septal conformation have been differentiated, these are subject to many modifications, but are readily classed under the five forms, as we will see later.

The degree of hypertrophy has been divided into three forms: (*a*) turbinal touching the septum, (*b*) allowing a small space between the septum and hypertrophy, and (*c*) moderate enlargement, but preventing a free current of air. Complete interference with nasal respiration on one or both sides, the turbinal being jammed against the septum, occurred twelve times, six on the right and six on the left side, but not in any one case were both so hypertrophied as to press against the septum. The turbinals were enlarged to a moderate degree, not entirely interfering with respiration, but to a great extent preventing the proper amount of air going through the nasal chamber, 176 times, eighty-eight on the right and the same number on the left, while in five instances the turbinal was moderately enlarged on but one side, the corresponding nasal cavity remaining unobstructed. As both sides of the septum were studied, it seems necessary to express the number of individual turbinal bones instead of the case in its entirety. Expressing this in cases, we find that in ninety-three both turbinals were hypertrophied, in six the left only was affected, while in the remaining case the enlargement was confined to the right nasal fossa. A careful study of the cases indicates that the degree of hypertrophy apparently bears no relation to the variety of septal deformity, the increase in bulk of the turbinal up to, but not touching, the septum and

allowing the column of air to be deflected against it, causing the changes, the deviations, etc., not being influenced by pressure, although a large amount of force exerted on the septum by the turbinal will produce nutritive alterations in the cartilage.

The first variety of septal deformity consists of a small spur on both sides, cartilaginous at first, but after a time becoming bony and may gradually increase in size, although they usually remain small. This form occurred in ten cases, the majority being under ten years of age, and in no case did it occur in patients over thirty years. The development of two spurs at opposite points on the septum appears to be a provisional cartilage developed by the irritation produced from the air-current and acting as a splint; this form bearing no relation to the thickened apex of the convex side of the septum when deviated, for here the septum remains perfectly straight. The second variety is the deviated septum; this was observed in forty-seven cases and occurred most frequently between the ages of ten and twenty years, while a number of cases were observed between twenty and thirty years of age. In twenty-eight cases the convex side was directed to the right, while in nineteen it projected into the left nasal fossa. In a large proportion of cases we find the septum deflected, this being the most common deformity in the majority of individuals. As before said, various causes have been adduced as effecting the deviation, traumatism, and anatomical faulty development claiming attention by numerous authorities. This is undoubtedly the case in a number of instances, but it certainly seems probable that in some cases of turbinal hypertrophy, instead of the column of air irritating the cartilaginous plate and causing an increased local cellular formation, with development of a spur, we may have nutrition so impaired by the irregularly directed air-current that a low grade of inflammation is produced, new cells are developed, then, from pressure, nutrition becomes progressively impaired and absorption takes place with thinning of the septum. On account of the pressure exerted in all directions on the cartilage, bending occurs at the thinnest portion and gradually increasing until a marked grade of deflection is produced.

The third variety is the predecessor of the deflected septum, and is characterized by a marked thinning of the cartilage directly opposite the point of greatest turbinal enlargement; on inspection two small depressions are seen, one on each side, and the intervening tissue is extremely thin; this does not go on to perforation, but remains in *statu quo* for a longer or shorter period, and finally the plate bends at the weakened point. Perforation was not observed in any of the cases, although this form of septal deformity was observed in thirty-one cases, and being most frequent between the ages of ten and twenty

years. The fourth variety resembles that last mentioned, inasmuch as the septum is thinned in a restricted area on both planes, but differs as the depressed portion is surrounded by a ring of cartilage; this occurred in nine cases, all being under thirty years of age, with one exception. The fifth and last variety consists of a small spur on one side of the cartilage directly opposite the enlarged turbinal, the other side of the septum being normal. The mechanism of production is the same as when two spurs are produced, but here one side is normal, the turbinal of that nasal chamber not being affected. This occurred in but three cases, age apparently bearing no relation, and the small number indicates in a way that it is comparatively rare for one turbinal to be affected without the other participating in the hypertrophic process.

In these cases we have seen that five main varieties of septal change could be differentiated, three seem to be entirely independent, —that is, they do not seem to be progressive stages in the pathological process; but in two forms, however, a relation exists, one preceding and being the early stage of the latter. It appears reasonably assured that deflections, thinning, and spurs of the cartilaginous plate are to some extent dependent upon pneumatic traumatism, the inspired air-current being altered and deflected in its course through the nasal chamber by variations in the surface topography of the anterior end of the inferior turbinal tissue.

The sex was about evenly divided, fifty-two being females and forty-eight males, the youngest being four years and the oldest seventy-five. The age of the cases presented several points of interest, the number increasing until the twentieth year, and then a slight fall occurred until the thirtieth year, with rapid diminution in the number later. Under ten years there were nineteen cases; in the second decade, thirty-eight; third decade, twenty-two; fourth decade, nine; fifth decade, five; and in the two decades following, but three and four respectively, showing that changes in the shape of the septum are most commonly produced in early life. In this respect Potique observes that the septum yields as age advances, attaining maximum deviation at adult age; this being observed in the cases here studied.

A STUDY OF THE EFFECT OF MINUTE DOSES OF ETHER AND CHLOROFORM.

By Horatio C. Wood, Jr.,

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Those who have investigated the actions of anesthetics physiologically with regard to the quantitative differences have almost disregarded the effects of small amounts, which, it would seem, ought to offer some interesting additions to our knowledge of the action of these so important drugs. Physiologists have satisfied themselves with statements, for example, that chloroform in weaker concentration than .6 volume per cent. (Rosenfeld,[1] Dastre[2]), or ether in less than 1.5 volume per cent. (Spenzer[3]), does not produce narcosis. In the rapid progress of anesthesia, as induced by the comparatively large doses ordinarily used, many phenomena of physiological interest may easily be hidden by the grosser changes of a high grade of poisoning; phenomena which may, however, be discovered when small doses are employed, while at the same time the order of the affection of the different organs of the body can be more exactly studied. Therefore I undertook—at the suggestion of Professor Mosso, to whom I render my best thanks not only for the instigation but for ever-ready aid and advice throughout the course of the experiments—the study of this subject.

Such small doses as were employed must of necessity be administered slowly, and over such long periods of time as to exclude the use of any method requiring an operative procedure or the fixation of the animal, as obviously in such case most undesirable fallacies might enter. Therefore a special apparatus was arranged. This apparatus consisted of an air-tight box, whose sides and top were made of glass, allowing a constant observation of the animal, resting on an iron base in which a trough of water assured the exclusion of air. In each end of the box were two holes, one of which was connected by means of a T-tube to two Bunsen pumps, the other to a gas-meter. In the tube leading to the gas-meter was an opening which communicated with a burette containing the anesthetic. In order to assure a constant pressure in the burette, and thus a regular rate of flow, the other end of it was connected with a Marey flask, by lowering or raising which the rate might be diminished or increased. The amount of air needed only to be read on the gas-meter and the amount of the anesthetic on the burette, for there was no possibility of air entering in any other man-

ner. The cubic contents of the box were about sixty litres, the amount of air passing through varied from 150 to 200 litres per hour; repeated tests of the assembled carbon, after the animals had been several hours in the box, gave assurance that there was an abundance of air supplied. In short, the animal lived in an atmosphere differing from the outside only in containing a slight excess of carbon, which was inevitable, and a definite amount of anesthetic vapor.

The first question naturally presenting itself is, What is the smallest quantity of the narcotic which has an appreciable effect, and what is that effect? Kronecker and Ratimoff [4] found that vapors containing less than five cubic centimetres of chloroform per 100 litres of air called forth no true narcosis; Cushing,[5] however, working in Professor Kronecker's laboratory, determined that air containing only 1.2 cubic centimetres of chloroform per 100 litres caused a paralysis of respiration in two hours. Rosenfeld, with apparent justice, suggests that there must be some error in Cushing's method, and confirms the closely corresponding results of Snow, Kronecker, Ratimoff, and Dastre, stating as the result of his experiments that a concentration of .54 to .69 volume per cent. (1.9 to 2.5 cubic centimetres per 100 litres) caused no true narcosis, but a light degree of hypnosis, after two hours. The earliest symptoms with the methods employed by these investigators could not be observed, because they are of such a character that they cannot appear with animals under such unnatural conditions. In dogs, with almost universal regularity, the first symptom of note that I have seen is a condition of nervousness or unrest; the dog which perhaps has been quietly lying down gets up and begins to nose suspiciously around the box, then he will often lie down, but not to remain quiet for more than a few seconds; indeed, he has hardly curled himself up in a normal position before he is taken with the desire to change his posture or to once more make the examination of his prison. With rabbits, on the other hand, the first action of the anesthetic seems to be to produce a desire to sleep, and although they later may become much excited, in the earlier stages they seem to be sleeping quietly. One experiment was made on a marmot, I thinking that, on account of his natural proclivity to sleep, some difference in his behavior towards the drug might be observed. In this animal the first symptom was an increased restlessness, not, however, so marked as in the dog. Guinea-pigs came so gradually under the influence of the narcotic as to make it impossible to say at what time the earliest effects began. With air containing .6 cubic centimetre per 100 litres (.15 volume per cent.) the first sign of uneasiness occurred in a dog in one hour and three-quarters; with concentrations of 2 to 2.5 cubic centimetres per 100 litres (.56 to .70 volume per cent.)

the first symptoms came on usually in about a quarter of an hour; and with higher concentrations (4 to 5 per 100 litres) no distinct symptoms made their appearance much before the end of fifteen minutes. Even such low concentrations as 1.2 cubic centimetres per 100 litres (.34 volume per cent.) caused, after some hours, a semiparalytic condition, in which the dog, although struggling continuously, had not sufficient strength to stand up. Concentrations between those mentioned, speaking in general terms, made their effect apparent in proportionate spaces of time. Rabbits, as a rule, seemed more resistant to chloroform than did dogs, .7 cubic centimetre per 100 litres calling forth even after nine hours no appreciable symptom, save, perhaps, a trace of sleepiness; with 2 cubic centimetres per 100 litres the first sign of the action of the drug appeared, as a rule, in about three-quarters of an hour.

It is very interesting in the consideration of these results to compare the amounts of ether required to produce like effects, for such a comparison bears directly on the much-discussed question of the comparative strengths of the drugs. The estimate of the proportionate strength of these agents varies within very wide limits as made by different investigators; Dastre[6] puts it at 1 to 2 by weight (about 1 to 4 by volume); at the other extreme Hill[7] gives it at 1 to 50! Waller,[8] by a series of interesting experiments on the isolated nerve, reached the conclusion that chloroform is seven times stronger than ether, a conclusion which may be taken to represent the average opinion of scientists. Spenzer[9] found that 1.5 (volume) per cent. of ether caused no true narcosis, but after two hours a hypnotic condition; 2.5 per cent. caused a partial narcosis. In my experiments 10 cubic centimetres per 100 litres (2.4 per cent.) caused the first signs of restlessness in about one hour, concentrations of 12 cubic centimetres per 100 litres (2.9 per cent.) or above in about half that time. The latter concentration caused a sort of paralytic condition after two hours, but no true narcosis. As with chloroform, rabbits showed themselves less susceptible to the action of the anesthetic than did dogs, 12.5 cubic centimetres per 100 litres, for example, making itself apparent only after an hour and a half.

From the results of my experiments I would conclude that ether, to produce the same effect, requires a concentration about ten times as high as that of chloroform.

Is there a difference, aside from that of strength, between the action of these two anesthetics? This question, of such interest and importance, which has been most vehemently discussed and argued by physiologists and clinicists since these two great drugs became rivals in the alleviation of the suffering of mankind, has been

nearly always approached from the stand-point of the circulation, and, perhaps, therefore I may be allowed to contribute a few facts from another point of view. As I stated in the beginning of this paper, one of the great advantages of the method employed was the appearance of symptoms, not observable with coarser, if I may be pardoned the term, methods. These symptoms, of course, are those referable to some part of the nervous system, either to the brain or spinal-cord centres, or to the peripheral nerves. According to the well-known physiological law, the higher centres of the cerebral cortex are first affected, which would explain most plausibly the difference in susceptibility between rabbits and dogs, the latter having a so much more highly developed brain. Unfortunately I know of no practical method of studying accurately the changes in the intellectual functions of the lower animals, so we must wait until the spinal cord commences to show itself influenced to seek for any differences in the action of chloroform and ether. These differences, though slight, as of necessity they must be, were, however, distinct and of such a nature as to hardly be referred to quantitative differences in the powers of the drugs. Cushing[10] makes the remark, in passing, that with low concentration the period of excitation is totally lacking in ether narcosis. Such I have observed almost uniformly to be the case; with the strengths used, almost none of that excitement produced by chloroform came to the fore with ether. For the sake of comparison the same animals were used at different times for the two experiments, and in no case, with dogs, did the excitation fail with chloroform, while with ether it was never so marked, and often entirely absent. This I have observed clinically, so that by beginning with small doses of ether, it is often possible to bring a patient to the stage of full anesthetization with none of that struggling so unpleasant to both patient and physician.

When the dog is taken out of the box into the open air, after inhaling chloroform, in a few minutes he recovers the ability to run around, albeit in a somewhat drunken manner; he shows, however, a desire to lie down, an indisposition to make any exertion, retreating into dark corners and plainly asking to be left alone. With ether, on the contrary, as soon as he was able to walk he seemed filled with the idea of showing his ability and would commence to run around the room with a great liveliness, falling down now and then in his unsteadiness, coming at the call, but immediately starting off in another direction. His actions, not being those of a dog in the period of narcotic excitation, when he struggles violently in a more or less incoördinate manner, but rather being due to an exuberance of animal spirits, such as animals show when they come out of a house into the open air. It might be thought that perhaps it was merely the relief

from being cooped up in such close quarters, but the manifestations lasted much longer than one would expect from such a cause. But a far more important difference was to be observed in the length of time necessary to recovery. When corresponding amounts of the anesthetics had been given, the animals being thus brought to the same degree of narcosis (I use the word for lack of a better term, although of course their condition was not a true narcosis), and when the anesthetics had been administered for the same length of time, in every case recovery was nearly three times as long after chloroform as after ether! Moreover, in two instances where the animals had been deemed sufficiently recovered, being in fact almost entirely so, to be left for the night *after chloroform they were found dead the next morning;* while in no case did I lose an animal from ether poisoning, although deliberate efforts were made to bring about such a result. In another instance, a rabbit, which was exposed to chloroform vapors at 1.2 cubic centimetres per 100 litres for six hours, died without ever regaining apparent consciousness, but living, however, for more than two hours after the cessation of the drug. In contrast to this, two rabbits were exposed to ether vapors of the concentration of 15 to 20 cubic centimetres per 100 litres for six hours, and, despite the fact that the morning of the same day they had inhaled ether for two hours, in thirty-five minutes they were so far recovered as to be able to walk, and the next day were apparently as well as ever.

The picture of the onset of the symptoms, of the gradual invasion of one dominion after the other, is so plain as to need no explanatory comment. For a period of time, varying with the degree of concentration, after the anesthetic is begun, the animal shows no sign of perceiving anything abnormal in his surroundings. Occasionally, however, and especially with ether, the local irritation was manifested by salivation or, in rabbits, by sneezing. The dog would begin to look around the cage, then he would arise and nose about all cracks; lying down again, he would soon, however, get up and apparently seek to find a more comfortable position. These manœuvres would be repeated, the movements becoming gradually more and more excited. The first positive indication of the loss of intellection was the failure of the hearing, the failure that is of the perception and interpretation of sounds. The sense of sight lasted somewhat longer. Usually, even before the dog ceased to show appreciation of sound, disturbance of co-ordination made itself manifest, the animal reeling and staggering about the cage as if drunken, the movements which by this time had become, at least with chloroform, much excited losing none of their violence, but rather of their purpose and force. Indeed, when almost totally paralyzed, the animal would still be seeming to

struggle with the whole of the energy left to its nervous system. These movements would appear to be rather the result of paralysis of inhibition than of an excitation of motor centres; for, in the first place, the spinal cord must be almost functionless, the movements having no force to them. And, again, it was noted that they were a repetition of the same movements over and over again, usually of a character similar to those before the onset of paralysis, thus the dog which began whining would keep on whining after all intelligence and all sensation were gone; the animal which struggled in the early stages struggled throughout the experiment; the impulse having once started the centres there was no check to their activity. Certain observations led me to believe that the motor cord was affected less than the sensory. In order to determine if this view was correct, the following method was employed: Two wires from an inductorium were led, through the tube by which the air was supplied, into the box and wrapped around the ear of a rabbit, from which the hair had been cut, not so tightly, of course, as to obstruct the circulation. The necessary strength of current to produce evidence of pain, as squealing or struggling, first being determined by several tests given the anesthetic. As soon as there was a distinct lowering of the sensibility the animal was taken out of the box and its patella reflex and ability to walk determined. I will quote from my notes the record of an experiment which may be taken as a type.

Experiment of April 26: Rabbit; chloroform.

10.05: Rabbit in box; arrangement for testing sensation (as described above). 65 millimetres, separation of secondary coil causes a squeal; 75 millimetres, slight movement of body; 70 millimetres, slight squeal.

10.15: 70 millimetres, causes movement of body; 65 millimetres, squeal; 60 millimetres, squeals and struggles.

10.25: Test of sensation: 65 millimetres, causes squeal; 70 millimetres, slight squeal.

10.35: 65 millimetres, squeal; 75 millimetres, slight squeal.

10.40: Chloroform begun.

10.50: Rabbit has received .8 cubic centimetre of chloroform.

Test of sensation: 65 millimetres, causes squeal; 70 millimetres, causes a local twitching of ear.

11.20: Chloroform, 2.1 cubic centimetres: Rabbit seems sleepy. Test of sensation: 60 millimetres, causes squeal; 65 millimetres, movement of body.

11.30: Chloroform, 3.1 cubic centimetres: Chloroform stopped. Test of sensation: 60 millimetres, slight movement of body; 50 millimetres, squeal.

11.32: Patella reflex present, animal walks apparently naturally.

It will be seen that there was a distinct lessening in sensibility while no motor changes were as yet demonstrable. If the narcosis is carried further, the animal loses the ability to walk, or even stand, before the sense of pain is entirely lost, the patella reflex, however, still remaining.

From the Physiological Institute of Turin, April, 1898.

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RADICAL CURE OF INGUINAL HERNIA, WITH REPORT OF CASES.[1]

By Benjamin Brabson Cates, M.D.,

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Without entering into detail as to the etiology, pathology, frequency, and varieties of inguinal hernia, and the different methods—palliative and radical—offered for the treatment of this affection, it is my purpose to report two cases upon which I operated for radical cure.

The first is a young man, aged about 23 years, a mechanic by trade. A tumor suddenly appeared in his right groin after a heavy lift. This proved to be an oblique hernia.

On May 16, 1896, assisted by Drs. L. W. Davis, E. L. Deaderick, and H. J. Kelso, I performed Macewen's operation for radical cure. The technique of the operation, as done on this and the following case, followed that described in Barker's "Manual of Surgical Operations,"—namely, in the first place, the sack, freed from all its sur-

[1] Read before the East Tennessee Medical Association, at Knoxville, Tenn., September 30, 1897.

roundings, is gathered up into a folded plug by a running stitch and is drawn thus within the internal abdominal ring opposite the opening. In the next the outer edge of the conjoined tendon is drawn by stitches towards the outer border of the internal ring, so as to reproduce as far as possible the valve-like arrangement of the parts which exists in a well-developed individual in the normal state. After this the pillars of the external ring are drawn together by the usual stitches. In this operation Dr. Macewen uses catgut for his sutures. In my first operation I used catgut for my running stitch, carbolized silk for my deep sutures, and silkworm gut for my superficial sutures. I relied not only on plastic adhesion for obliterating the abnormal opening, but by using silk for the deep sutures I thought it would support the deeper structures in their new position, and thus prevent the recurrence of the rupture. This case had a slight rise in temperature (99° F.) a few hours after the operation, due to fibrin ferment fever. This fever, however, had disappeared the next morning. There was no repetition of this elevated temperature. He made a rapid recovery, without any complications. He was dismissed at the end of three weeks, and has remained well to this day.

The second case is a lad 12 years old, with a complete oblique inguinal hernia on the right side, dating from infancy, February 14, 1897, about 8 A.M. the hernia descended into his scrotum and became strangulated. I did not see the patient till about 11.30 A.M. In the mean time another physician had seen him and failed to reduce the hernia by taxis after thorough etherization.

Assisted by the Drs. Deaderick, I operated for the relief of the strangulation—which was caused by the dense unyielding external pillar of the ring—by cutting down upon the tumor and nicking the external pillar. I then reduced the somewhat congested bowel and performed Macewen's operation for radical cure. The deep stitches used in this case were deer tendon, given me by Dr. C. Deaderick.

The lad did well, was somewhat sick from the anesthetic. That night he had a large, copious stool following a dose of castor oil, and announced that he felt better. The next morning he had about half a degree of fever. Towards night this disappeared and never recurred. From that time his recovery was uneventful. He was kept confined in bed for two weeks, and then dismissed with instructions to continue wearing his truss. He is well to-day and has had no return of the hernia.

Remarks.—(1) The running stitch used in gathering up the sack into a folded plug is passed through the abdominal wall above the internal ring and tied over a roll of lint, or a safety-pin. This holds the plug in position till adhesions form.

(2) I believe surgically clean silk the best possible suture for the deep stitches; because remaining encapsuled in the tissues it acts as a support and prevents any tendency to recurrence.

(3) Since all operations for the radical cure of hernia are liable to return, whatever method used, in order to reduce this tendency to a minimum, I think it best to keep our patients in bed on their backs for at least three weeks. Then for several months after they get up a suitable truss should be worn,—though my first case has never worn one,—and to avoid as much as possible any heavy lifting.

(4) In all operations where the bowels are exposed (especially in hernia cases) and manipulated for any length of time, it is, in my opinion, good practice to have the bowels moved as soon as possible, because they so often lose their peristalsis, and the paresis passes into complete paralysis.

(5) I have noticed that my patients who have a slight temperature-increase a few hours after an operation—called aseptic, resorption, or post-operative fever—do better when the fever symptoms subside than when the fever rises three or four days after an operation.

Since reading the above paper I met with an interesting case that may be of value to the profession.

F. M.; male; American; white; aged 25 years; laborer. Mother died of tuberculosis. Father and three brothers living. His father and one paternal uncle have hernia. In 1894 he had a complete oblique inguinal hernia to suddenly appear on the right side. In September, 1897, the hernia descended and became strangulated. This was reduced by taxis under an anesthetic. In about a week it again became strangulated and was reduced as before.

Examination showed on the right side—when the truss was removed—a tumor in the scrotum. This gave the characteristic impulse on coughing, and was easily reducible. There was no evidence of varicocele when standing. In fact, he was never troubled with varicose veins in his scrotum. I mention this to show the complications that may arise in an operation for hernia.

On January 29, 1898, assisted by Dr. S. M. Miller, I performed Macewen's operation for radical cure of hernia. On opening the external ring a large sausage-shaped tumor sprang out. This simulated very much a knuckle of gut. On closer inspection it proved to be enlarged veins. I did the radical cure for varicocele, and then finished the operation for the radical cure of the hernia by the method described. I used silk for the deep sutures, and silkworm gut for the superficial sutures. The patient made a good recovery.

THE ANOMALIES OBSERVED IN THE DISSECTING-ROOM OF THE UNIVERSITY OF PENNSYLVANIA DURING THE SESSION OF 1896–97.

By John M. Swan, M.D.,

PHILADELPHIA,

Assistant Demonstrator of Anatomy, University of Pennsylvania.

Anomalies of the Muscular System.

In one body a muscular belly, arising from the internal condyle of the humerus, formed a second head for the flexor longus pollicis muscle. This was seen in both arms.

In two subjects a tendinous slip connected the flexor sublimis digitorum and the flexor profundus digitorum muscles. The arrangement was unilateral.

In one subject there was a muscular slip connecting the flexor longus pollicis and the flexor profundus digitorum.

In one body the first lumbrical muscle had its point of origin from the first tendon of the flexor sublimis digitorum muscle.

In one case two heads of the biceps femoris were ununited in their entire length and were inserted into the head of the fibula by two distinct tendons.

In one subject a tendinous slip from the tibialis anticus muscle was inserted into the head of the first metatarsal bone.

In one leg a small muscle took its origin from the anterior surface of the shaft of the fibula, just below the origin of the extensor proprius hallucis, and was inserted into the head of the first metatarsal bone.

Anomalies of the Arterial System.

The common carotid artery divided opposite the greater cornu of the hyoid bone in one subject. The arrangement was bilateral. The superior thyroid artery in this case was a branch of the common carotid, and the superior laryngeal artery arose from the common carotid artery as a separate branch.

In one case the superior thyroid artery was absent and the lingual artery was a branch of the facial.

Two anomalies of the arch of the aorta were found. In the first case the innominate and left common carotid arteries came from the

arch as a common trunk and the vertebral artery of the left side was given off between this large vessel and the left subclavian artery. In the other case the same vessels were given off from the arch of the aorta; but the left vertebral arose beyond the left subclavian artery.

In one body the inferior thyroid artery was a large vessel and had its origin directly from the subclavian. In another subject the internal mammary artery was a branch of the thyroid axis.

In one subject the posterior circumflex artery was a branch of the subscapular, bilateral; and in another the acromio-thoracic and long thoracic arteries were given off from the axillary as a common trunk.

In five subjects high bifurcations of the brachial artery were discovered. Of these, four were bilateral and one was unilateral, making nine anomalous brachial arteries. In one case—unilateral—the bifurcation took place in the axilla. In one of the bilateral cases the radial artery passed beneath the bicipital fascia, while the ulnar vessel ran with the median nerve.

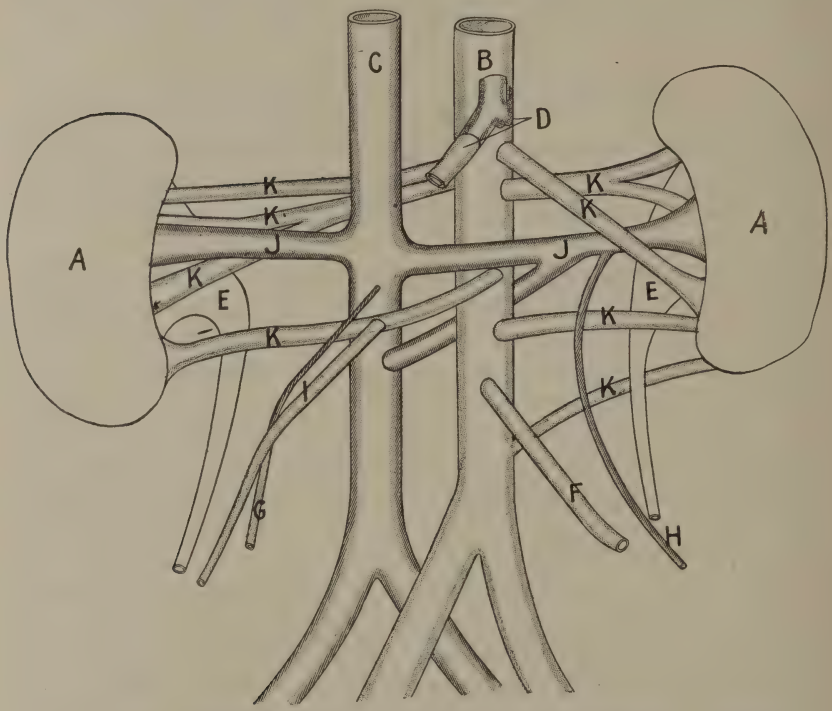
In one body the common interosseous artery was given off from the ulnar three centimetres below the bend of the elbow. In another subject there was no common interosseous, the anterior and posterior interossei being branches from the ulnar artery direct.

The superficial palmar arch was formed by the anastomosis of the superficial branch of the ulnar and the median artery in two subjects. In one subject the superficial palmar arch was absent, the digital arteries coming from the superficial branch of the ulnar artery and from the median artery. These anomalies of the superficial palmar arch were bilateral.

The anomalous arrangements of the renal arteries were most interesting. In six subjects the renal blood-supply was abnormal. In three of these there were bilateral double renal arteries. In a fourth case there were double renal arteries on the right side, while the left vessel divided eighteen millimetres from the abdominal aorta.

The other two cases deserve special mention. In one body (see figure) there were three renal arteries on the right side. Two of these vessels passed beneath the inferior vena cava, one of which divided into two branches before it reached the hilum of the kidney. The third vessel arose from the anterior surface of the abdominal aorta, passed above the inferior vena cava, and entered the lower extremity of the kidney. This branch gave off the right spermatic artery. On the left side of this subject there were four renal arteries. The renal artery proper arose from the abdominal aorta one centimetre below the origin of the superior mesenteric artery and divided into two branches before it reached the hilum of the kidney. A second branch arose

above the proper renal artery, just opposite the superior mesenteric artery, passed across the renal artery and vein, and entered the lower portion of the hilum of the organ. A third branch arose from the anterior surface of the abdominal aorta, just above the inferior mesenteric artery, and entered the lower extremity of the kidney. The fourth branch arose from the abdominal aorta one centimetre below the inferior mesenteric artery and entered the lower extremity of the organ, below the third artery. The left renal vein divided into two



A, kidneys; B, abdominal aorta; C, inferior vena cava; D, superior mesenteric artery; E, ureters; F, inferior mesenteric artery; G, right spermatic vein; H, left spermatic vein; I, right spermatic artery; J, renal veins; K, renal arteries.

just after leaving the hilum of the kidney, one of the branches passed in front of the aorta, in a straight course, to empty into the inferior vena cava; the other branch passed behind the aorta and ran with a decided obliquity, to empty into the inferior vena cava considerably lower than its fellow.

In the sixth subject there were three left renal arteries. The largest of these arose from the abdominal aorta twelve millimetres below the superior mesenteric artery; a second branch arose three

centimetres below the superior mesenteric artery, and both vessels entered the hilum of the kidney. The third vessel arose from the abdominal aorta ten centimetres below the superior mesenteric artery and entered the kidney at its lower extremity. There were two right renal arteries. The larger of these arose from the abdominal aorta fifteen millimetres below the superior mesenteric artery and entered the hilum of the kidney after dividing into three branches, fifty-seven millimetres from its origin. The second and smaller vessel arose from the abdominal aorta 105 millimetres below the superior mesenteric artery and entered the lower extremity of the kidney. A branch of the larger vessel in this case was given off one centimetre from the aorta and passed upward to enter the under surface of the liver near the neck of the gall-bladder. There were two right renal veins.

In one body the obturator artery was a branch of the external iliac, on both sides. In another subject the obturator and deep epigastric arteries were given off from the external iliac by a common trunk, on both sides. In one case the deep epigastric artery was a branch of the femoral.

In one body there were two profunda femoris vessels. One of these gave off the external circumflex and middle perforating arteries; the other gave off the internal circumflex. The latter vessel gave off superior and middle perforating arteries.

Visceral Anomalies.

There was one horseshoe kidney.

Anomalies of the Nervous System.

In one case the median nerve crossed behind the brachial artery instead of above it. In another case the median nerve had three outer heads. In two cases the musculo-cutaneous nerve sent a branch to the median nerve after the latter was formed.

There were two high divisions of the sciatic nerve. In one case a fasciculus passed from the external cutaneous to the anterior crural nerve.

Relationship of Migraine to Epilepsy.

Rachford (*American Journal of the Medical Sciences*, April, 1898), from observation and study of the literature, is convinced that the kinship of migraine and epilepsy is one of the facts and not one of the theories of medicine. He believes that he has proven that paraxanthin is a most important factor in true migraine, and that it is also an important factor in the production of one form of toxic epilepsy. He says migraine, therefore, bears a close etiological relationship only to toxic epilepsy, and possibly only to the form of epilepsy which he has described as paraxanthin epilepsy.

CLINICAL DEPARTMENT.

CEREBRAL TETANUS FOLLOWING OPERATION FOR HEMORRHOIDS; FAILURE OF ANTITOXIN.

THE following case of tetanus seems to me worthy of being briefly put on record for two reasons; first, because it was an almost typical case of so-called "cerebral tetanus," and was apparently the result of an operation for hemorrhoids, and not of the wound about the head. Second, on account of the complete failure of the five-million-immunity units of an American tetanus antitoxin to produce any apparent effect whatever; a result which was distinctly superior to that obtained by me in another case, in which another tetanus antitoxin apparently greatly hastened the death.

I have not been able to see the surgeon who operated, as he had left the case and gone out of town; but this is the fourth case of surgical tetanus which I have seen in a comparatively short period, and in the three others I believe that the poisoning was produced by washing the wound with unboiled Schuylkill water, the surgeon supposing that he had sterilized the water by the use of corrosive sublimate, forgetful of the fact that the bacillus of tetanus is one of the most sturdy of pathogenetic germs, its spores being capable of surviving a heat which kills the spores of all other known bacilli, and it itself not being killed by a two hours' immersion in a 1 to 1000 solution of mercurial chloride. For the notes of the case I am under obligations to Dr. Walter G. Elmer, the resident physician in the Presbyterian Hospital, to a private room of which the patient was taken.

"Mrs. K., white, aged 37 years, a widow for six years, had been unwell for the past six months, and suffered from hemorrhoids. These were operated upon at her house by the clamp and cautery method. The wound healed promptly; but on the ninth day following the operation the patient noticed stiffness and soreness in the muscles of the throat, and later in the day experienced great difficulty in swallowing. There was also pain, which was paroxysmal in character, and the patient frequently asked to be raised up in bed in her effort to breathe and to swallow saliva.

"The next morning the power of swallowing was completely lost, any attempt producing violent spasms involving the head and the whole respiratory tract. Trismus appears to have developed during

this day. In the evening Dr. H. C. Wood first saw the patient, who was taken, at his suggestion, to a private room in the Presbyterian Hospital, where it was noted that there were violent tonic spasms of the muscles of the throat and neck, and, in the more severe paroxysms, of the muscles of the chest with occasional twitchings of the arms and legs. At the time of entrance the temperature was 99° F.; twenty-four hours afterwards it was 101.6°.

"Eighteen hours after admission to the hospital five-million-immunity units of antitoxin were injected into the buttock. This caused perceptible alteration of the symptoms, which continued to increase in severity until it finally became necessary to frequently use chloroform to relax the intense spasm of the muscles. At the end of twenty-six hours after admission, or sixty hours from the first symptoms of the disease, the patient died of cramp asphyxia. The temperature ten minutes before death was $102\frac{3}{5}°$ F. by axilla; respirations 36, and pulse 136. Fifteen minutes after death the temperature had fallen to $101\frac{3}{5}°$."

H. C. Wood, M.D.

ABDOMINAL PREGNANCY WITH PECULIAR HISTORY.

Mrs. Nancy K., white, American, aged 43 years, was admitted to the Oil City Hospital, February 23, 1898, with the following history: Menstruation at 11 years; regular; three days' duration; no pain; married at 15 years; seven children; two miscarriages preceding last child three years ago; no doctor at any confinement. Has worked hard on a farm; in good health until one year ago, when her health began to fail, and she noticed a lump in the lower left side of the abdomen, which was tender and increased in size rather rapidly. In May she was attacked with "inflammation of the bowels;" was attended by an eclectic physician, and confined to bed for three weeks.

For the next three months the lump rapidly grew, until in August, accidentally straining herself at her work, she broke "something," and a lot of "water" was passed by the rectum. After another three weeks in bed she again got up, but was not well, had no appetite, was constipated, became rapidly emaciated, and complained of pain in her abdomen, and her legs swelled. Several times in the next six months the tumor enlarged, which was followed by a discharge of rotten-looking liquid through the rectum, and then would diminish again. Her condition became so bad that for another month she was confined to

bed, and on the advice of a number of physicians was brought to the hospital. On admission she was quite emaciated; and had a tumor extending two fingers' breadth above the umbilicus, irregular in outline, nodulose, and cystic in feel, lying mostly in the left iliac region. On vaginal examination the uterus was found pushed to the right, two and a half inches, and apparently attached to a cystic mass involving the left ligament. The breasts presented a normal appearance, the left leg was edematous and painful. For the next week her daily temperature varied from 99° to 102° F., and she appeared septic. On March 3 a celiotomy was performed by Drs. Thomas and Ward, assisted by Dr. Davis. Upon opening the peritoneal cavity, a well was struck containing about two quarts of yellow, fetid pus, in which floated a macerated male fetus 6 months old. The placenta was attached to the parietal peritoneum and to the anterior surface of the omentum, which seems to have been pushed up, and walled off the intestine. The left tube had been ruptured and the sac was adherent to it, the left ovary and rectum also. As much as possible of the placenta was removed from the abdominal wall; the cavity flushed with a hot saline solution; a Mikulicz drain of iodoform gauze inserted, which was left in for forty-eight hours. Then daily, for ten days, it was irrigated with formalin, one drachm to one pint, after flushing out with 50 per cent. of hydrogen dioxide. Then every third day it was dressed until four weeks from the time of operation. She left town carrying a market-basket on one arm and supporting a drunken husband on the other.

Another peculiar feature of the case omitted above was regular menstruation during the whole period of illness.

J. M. Ward, A.M., M.D.

ALUMNI NOTES.

One Hundred and Forty-Second Annual Commencement.

The one hundred and forty-second annual commencement, making the one hundred and fifty-eighth year of the University's existence, was held on Wednesday, June 8, 1898. Degrees were conferred in arts, science, laws, philosophy, medicine, dental surgery, and veterinary medicine; and honorary degrees were conferred on several men of note, among them Bishop Whitaker, who was made Doctor of Laws, and Bishop McVickar, who received the degree of Doctor of Divinity. The degree of Doctor of Philosophy was given Miss Agnes Irwin, great-great-granddaughter of Benjamin Franklin, and dean of Radcliffe College, at Harvard.

The students, headed by the Provost, Trustees, and members of the Faculties, marched in procession from College Hall to the Academy of Music, at Broad and Locust Streets. The orator of the day was Hon. John B. McPherson. The following prizes were awarded:

The Alumni medal, with an accompanying purse of $50, to the member of the graduating class who attains the highest general average in examination. To Elmer A. Dean.

The prize of $100, offered by a friend of the department to the member of the graduating class who passes the best examination in obstetrics. Equally to James Avery Draper, Jr., and Alfred James Ostheimer, Jr.

The prize of an obstetrical forceps, offered by the professor of Obstetrics to the member of the graduating class who furnishes the best report of a case of obstetrics occurring in the University Maternity Hospital. To Breese Morse Dickinson.

The prize of $25, offered by a friend of the department to the member of the graduating class who passes the best special examination in therapeutics. To Bernard Kohn; with honorable mention of Charles Ransom Reynolds.

A prize of a surgical pocket-case, offered by the demonstrator of Anatomy to the member of the graduating class who presents the best record of anomalies found in the anatomical rooms. To Henry Thomas Woodward.

The prize of a copy of White and Martin's "Genito-Urinary Surgery," offered by the professor of Clinical Surgery to one member of

each of the four surgical ward class sections for reports of that service. To William Hamilton Jeffreys; with honorable mention of Harry Clarkson Westervelt and Breese Morse Dickinson.

The prize of a surgical pocket-case, offered by the professor of Clinical Surgery for the best report of his clinics during the session. To Lucius Carter Kennedy; with honorable mention of Howard Yarnall Pennell.

The two prizes offered by the demonstrator of Surgery are awarded as follows: A surgical pocket-case for proficiency in fracture dressings and in operative surgery. To Frederick Fraley, Jr.; with honorable mention of Charles Ru Lon Pittinger and Franklin Lafayette Warren. A surgical pocket-case to Macy Brooks, of the first-year class, for proficiency in bandaging; with honorable mention of Edward Armin Schuman and José M. Portuondo.

The Zentmayer prize of a microscope for the best examination in histology and embryology. To Oscar Noel Torian.

The prize of a hemocytometer, offered by the lecturer on Physical Diagnosis to the member of the first-year class who presents the best report of his lectures on physical diagnosis. To Alvan Woodward Sherrill; with honorable mention of the reports of Arthur Truman Boyer and James Rieser Gerhard.

The prize of an antiseptic minor operating case, offered by the clinical professor of Orthopedic Surgery for the best practical work in orthopedic surgery, or for the best report of his clinic, or for an acceptable original design in apparatus. To Nathan Shurts Yawger.

The prize of an axis-traction obstetrical forceps, offered by the Barton Cooke Hirst Obstetrical Society to the member of the graduating class who passes the best examination in operative obstetrics. To William Hamilton Jeffreys.

Mr. S. F. Houston Elected to the Board of Trustees.

At a meeting of the trustees, held on June 7, 1898, Mr. S. F. Houston, Class of '87, was elected to the position of trustee, made vacant by the death of Mr. Thomas McKean. He was nominated by the Central Committee of the Alumni, who nominate every third vacancy on the Board.

Meeting of General Alumni Society.

The annual meeting of the General Alumni Society was held in the auditorium of Houston Hall, June 8, at 12.30. The President, Dr. Pepper, presided.

The report of the Board of Directors on the work of the year, end-

ing the 31st of May, was presented. The Directors reported gratifying progress, and a marked increase in the interest taken in the society.

The society is universally regarded as the most valuable organization of its kind connected with the University, because of the facts, first, that the field covered by its operations is larger and more complete than is attempted by any of the department societies, and, second, because the field and work are actively watched.

The membership showed a net increase of 101 over the preceding year, the total now being 1201. The number of subscriptions paid showed an increase of 343, while the amount of the same increased $769.45.

The total income for the year was $2377.26, while the expenditures, including making up deficits for the preceding year, were $2192.83, leaving a surplus of $184.43, which, while small, shows, when compared with the deficit of $414.03 for last year, an improvement of $598.46.

The *Alumni Register*, the official organ of the society, met with marked success. The records and historical information in the office of the society have been materially improved in the past year. The number of those who consulted these records increased from 84.28 per month last year to 113.58 in the year just closed.

In addition to this report, the usual reports were read for departments as follows:

For the College, George Q. Horwitz; Law School, Chester N. Farr, Jr.; Medical, Dr. Horatio C. Wood; Dental, Dr. Edward C. Kirk; Athletics, John C. Bell.

Aside from adoption of a few amendments to the by-laws, no business of importance was transacted. Under the amended by-laws the secretary and treasurer are appointed by the board.

The following officers were elected for the ensuing year:

President, William Pepper, M.D., LL.D.; vice-presidents, H. L. Geyelin, Horatio C. Wood, M.D., Hampton L. Carson, John Marshall, M.D., Edward C. Kirk, D.D.S.; board of directors, George Quintard Horwitz, William Platt Pepper, Joseph G. Rosengarten, Alfred Stengel, M.D., Wharton Sinkler, M.D., Chester N. Farr, Jr., Murdoch Kendrick, Frank B. Ellis, William L. Winner, D.D.S., John C. Bell, John W. Adams, George H. Frazier, Lewis Neilson, Clayton F. McMichael, Samuel F. Houston.

After the meeting a luncheon was served in the University dining hall. The following were called upon to speak: For Harvard, Hon. Clayton E. McMichael; for Yale, Rev. Dr. Richardson; for Cornell, Professor Wheeler; for Pennsylvania, Judge Porter.

The First Victim.

Dr. John Blair Gibbs, acting assistant surgeon, U. S. N., is the first member of the medical profession to fall a victim in the present war. He was killed in the skirmish at Guantanamo, Cuba, on June 11. Dr. Gibbs was a son of the late Major Gibbs, of the regular army, and was born in Virginia in 1858. He was graduated from Rutgers College, New Jersey, in 1878, and from the Medical Department of the University of Pennsylvania in 1881. Later he was house surgeon at Bellevue Hospital, and more recently he has been an instructor at the New York Post-Graduate Hospital, attending surgeon to the Demilt Dispensary, and assistant surgeon to the Lebanon Hospital.

Medical Alumni Meeting.

The twenty-third annual meeting of the Society of the Alumni of the Medical Department of the University was held recently at the Hotel Stenton. The following officers for the ensuing year were elected:

President, Dr. Meredith Clymer; vice-presidents, Drs. C. H. Mastin, J. H. Packard, James Tyson, S. D. Risley; secretary and treasurer, Joseph P. Tunis; Executive Committee, H. Y. Evans, John Ashhurst, Jr., R. A. Cleeman, S. S. Stryker, De Forest Willard, R. G. Curtin, William B. Hopkins, C. W. Dulles, J. H. Musser, T. R. Neilson, Judson Daland, H. H. Whitcomb, E. J. Morris, D. B. Birney, B. F. Stahl, Joseph Sailer, C. H. Frazer, G. McConnell, J. T. Buxton, B. M. Dickinson.

After the business meeting, dinner was served, at which the following toasts were responded to:

"The University," Provost Harrison; "Professional Relations," Hampton L. Carson, Esq.; "The Medical Department," Dr. John Marshall; "Our Alumni," Dr. Charles W. Dulles.

Reunion of the Class of 1858, M.

The Medical Class of 1858 held a fortieth year reunion on June 7. Only eleven of the old fellows could be gotten together. Yet in this small number were representatives from the army, navy, professional, and private professional life. The report of the acting secretary revealed the fact that the man with the scythe had made a wide swath in their ranks. Nearly one-third of the original one hundred and forty-six had joined the majority.

Honors had not been easy in the experience of the class. As far as could be ascertained not one of the original band had dishonored either his craft or his manhood.

Record of the Class of 1878, M.

At the twentieth anniversary dinner of the Class of '78, Medical, on the 15th of March, the following statistics were presented: 127 graduated on the 15th of March, 1878; 19 are known to be dead; 5 live in foreign countries; 6 have become irregular practitioners; 6 could not be located; 48 replied to the secretary's circular requesting information, while 43 failed to reply. Of the 48, 40 are practising medicine; 12 are specialists; 32 hold positions of honor or prominence; 25 are contributors to literature; 15 are presidents of State or county medical societies; 10 are or have been professors in medical schools; 3 are editors of medical journals; 6 are presidents of non-medical bodies; 2 are superintendents of insane asylums.

Of those not practising, 1 is a coffee-planter; 2 are gentlemen of leisure; 1 is retired; 1 is a farmer; 1 a politician (now a postmaster); 1 a banker; 1 a legislator. The oldest living member is 75, having graduated at 55.—*Alumni Register.*

Reunion of the Class of 1888, M.

The decennial dinner of the Class of '88, M., was held at the Hotel Lafayette on Tuesday evening, June 7. As the result of a very general feeling expressed by those present, it was decided to hold the next class dinner in 1903. A permanent organization was effected with Dr. Charles M. Hay, president, and Dr. L. H. Adler, Jr., 1610 Arch Street, Philadelphia, secretary. Members of the class and their friends will confer a favor upon the officers by communicating to the secretary changes of address and other items of news for the class record.

Pennsylvania Men in the Army.—Correction.

In publishing the names of graduates of the Medical Department of the University of Pennsylvania who were then encamped at Mount Gretna, in the June issue, the name of Dr. Frederick Packard was inadvertently inserted. The note referred to his brother, Dr. Francis R. Packard.

Necrology.

Dr. George W. Miller died in Lampeter, Lancaster County, Pa., on June 2, 1898. He was 68 years of age.

EDITORIAL.

TYPHOID FEVER WITHOUT CHARACTERISTIC INTESTINAL LESIONS.

That the clinical phenomena of typhoid fever might exist without characteristic lesions in Peyer's patches, the solitary lymph-nodules or mesenteric glands has been suspected for many years, but only recently has it been possible to prove conclusively that such cases were genuine examples of typhoid infection. The isolation of the bacillus typhosus from the various organs and secretions of the body must now be regarded as the only incontestable proof that a given case is one of typhoid fever. Cases in which the diagnosis of typhoid fever without intestinal lesions has been corroborated by a bacteriological examination have been recorded by Banti, Karlinski, Guarnieri, Du Cazal, Guinon and Meunier, Pick, Chiari and Kraus, Flexner and Harris, Hodenpyl, and Nichols and Keenan.

Banti's case (*Riforma Medica*, October, 1887) was a woman, aged 31 years, who died on the twenty-sixth day of a typical attack of typhoid fever. The autopsy showed no lesion of the intestine, but examination of the spleen revealed bacteria which Banti regarded as typhoid bacilli. Karlinski (*Wiener medicinische Wochenschrift*, No. 11, 1891) reports three cases, occurring in a general epidemic of typhoid fever, in which no lesions were found in either the large or small intestines. The mesenteric glands and spleen were enlarged. In one case the spleen was five times its normal size. Cultivations from the spleen revealed the presence of the typhoid bacillus in each case.

Guarnieri's case (Baumgarten's *Jahresbericht*, 1892) was one of primary typhoid infection of the gall-ducts. There were no intestinal lesions, but cultures from the blood before death, and from the liver and spleen after death, gave growths having the character of the bacillus typhosus.

Du Cazal's case (*Bulletin et Mémoires de la Société médicale des Hôpitaux de Paris*, 1893) was one of typhoid fever with double pneumonia. The intestinal mucosa was normal, but the mesenteric glands, spleen, and kidneys were congested and swollen. Cultures from the spleen yielded a growth of typical typhoid bacilli.

The following case cited by Guinon and Meunier (*Le Bulletin*

Médical, 1897) suggests that infection took place through the respiratory tract. The patient was a boy of 8 years, who was admitted to the hospital with the symptoms of incipient phthisis; soon typhoid phenomena appeared, and a positive Widal reaction was obtained. Post-mortem examination revealed lesions resembling acute miliary tuberculosis with small intestinal ulcers, not typhoidal, but typically tubercular in character. Typhoid bacilli, however, were obtained from the spleen, lungs, and pleuritic exudate. In Pick's case (*Wiener klinische Wochenschrift*, 1897, No. 4) there were no intestinal lesion and no swelling of the spleen, but the serum reaction was positive, and a bacteriological examination gave typhoid bacilli. In nineteen cases of typhoid fever examined post-mortem by Chiari and Kraus (*Zeitschrift für Heilkunde*, Hefte v und vi, 1897) between January and May, 1897, there were seven without the usual intestinal lesions, and all of these had given a positive Widal reaction. In Hodenpyl's case (*British Medical Journal*, December 25, 1897) the small intestine, esophagus, appendix, and mesenteric glands appeared perfectly normal, but numerous minute ulcers with sharp edges and smooth bases were found throughout the entire length of the colon. A bacillus was isolated from the spleen, which proved, after a very thorough investigation, to be the typhoid bacillus. The case cited by Flexner and Harris (*Bulletin of Johns Hopkins Hospital*, December, 1897) was a man, aged 68 years, whose illness dated back two months before his admission to the hospital, during which time he had been losing flesh and strength. The appetite was poor, but chills, fever, and night-sweats were absent. Two weeks previously he developed pains in the back and abdomen, and shortness of breath. On admission he was dull and listless, and seemed to be in much pain. The respirations were 44 per minute. He gradually sank and died on the third day. The anatomical diagnosis was "typhoid fever without intestinal lesions; typhoid septicemia; thrombosis of the main branch of the pulmonary artery supplying the lower lobe of the right lung; gangrene of the lung; perforation of the pleura; pyopneumothorax; acute splenic tumor; parenchymatous degeneration of the liver and kidneys; obliteration of the lumen of the appendix vermiformis." The esophagus, stomach, intestines, and mesenteric glands showed nothing abnormal. Plate cultures were made from the various organs, and with the exception of a single colony from the kidney, which proved to be a diplococcus, only a single bacillary form was found, and this had all the characteristics of the bacillus typhosus.

The case reported by Nichols and Keenan (*Montreal Medical Journal*, January, 1898) presented clinically the symptoms of an ordinary attack of typhoid fever. At the autopsy the intestines were found

to be entirely free from ulceration, although the lowest three Peyer's patches in the ileum were slightly raised, but showed no signs of ulceration. There was no evidence of healed typhoid ulcers. The mesenteric glands were enlarged. Cultures from the spleen and liver gave a bacillus which fulfilled all the requirements of Eberth's bacillus. Nichols and Keenan divide typhoid without intestinal lesions into three classes:

(1) Typical typhoid, minus the ulcerations; (2) spleno-typhoid; (3) the nervous type with extreme intoxication. The cases of the first type are rare. Diarrhea may be present. Three of the recorded cases belong to this group. The second type is characterized by an excessively large spleen, often with acute perisplenitis, and fever of a recurrent type. The third class, due to severe intoxication, is characterized by extreme prostration, delirium, coma, sometimes hyperpyrexia, degenerative changes in the vascular system leading to purpura, hematuria, and melena. Jaundice is sometimes present. Many of these cases are, no doubt, examples of secondary infection.

Chiari and Kraus divide cases of typhoid fever into four anatomical groups. The first includes anatomically typhoid cases; the second, anatomically atypical cases, in which, however, at the autopsy a diagnosis can still be made; the third, cases in which an anatomical diagnosis of typhoid fever is not possible, but in which a bacteriological examination reveals infection with typhoid bacilli; the fourth, cases in which no anatomical lesions exist, the serum test during life being positive, but in which at autopsy the bacteriological examination is negative, while the serum test may still be positive. No very satisfactory explanation for the absence of the intestinal lesions in typhoid fever has yet been offered. According to one view some other avenue than the intestine is the port of entry of the typhoid bacillus. The case of Guinon and Meunier seems to lend support to this view. According to another theory certain ptomaines in the intestine or toxins of other germs antagonize the typhoid bacillus and bring about a local immunity.

MEDICAL PROGRESS.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM PEPPER, M.D., LL.D., AND JAMES TYSON, M.D.,

ASSISTED BY

M. HOWARD FUSSELL, M.D., AND A. O. J. KELLY, M.D.

Rumination in Man.

Sinkler (*Journal of the American Medical Association*, April 9, 1898) says rumination or merycism must not be regarded as the simple regurgitation or vomiting of food. It is a return of the food shortly after it has been swallowed, unattended by nausea, retching, or disgust. In many cases only the portions of food which need remastication are returned. The regurgitated food is either rejected from the mouth or it is remasticated and again swallowed. The act of rumination in man is analogous to the process of rumination or chewing the cud in certain of the lower animals. In the act of regurgitation two factors are present, one the lessening of the intrathoracic pressure and the other the aspiration of the gastric contents. The stomach itself is probably a passive agent in the act of regurgitation as it is in the act of vomiting. There is, however, an antiperistaltic movement in the esophagus as soon as the bolus enters this canal. Rumination is a reflex act, and is controlled by a centre in the medulla oblongata. The nerves concerned are the pneumogastric, the phrenic, and the motor nerves of the abdomen, stomach, and esophagus. The process of rumination is regarded by all as being practically identical in its mechanism with that of the herbivora. The causes of rumination have been variously assigned by different writers, but the majority of observers agree that in nearly all cases of merycismus there is a neurotic diathesis, and that neurasthenia plays a large part in the production of the affection. Singer gives the following conclusions: (1) Rumination and regurgitation ought to be identical with each other; (2) rumination is the expression of a nervous constitution; (3) the next reason for the condition is the relative insufficiency of the cardia; (4) the mechanism consists of an aspiration of the stomach contents into the relaxed cardia by reason of the ramification of the air in the thorax, occasioned by a simultaneous expiratory act of the closure of the glottis; (5) the regurgitation of the food can be prevented by expiratory acts; (6) the *antrum cardiacum* corresponds to a widening of the esophagus, demonstrable in life; it occurs from stretching, by swallowing large pieces of food; (7) rumination is to be differentiated physiologically and clinically from vomiting; the only form it can be allied to is nervous vomiting; (8) the relation of the function is constant and has the complex symptoms of rumination in all the significance of an accidental occurrence; (9) regurgitation in diverticular formation and in dila-

tation of the esophagus is different from rumination in the predominance of difficulty in swallowing; (10) hasty eating and much fluid drink must be avoided; medication should be directed to tone up the cardia. My own experience, and that of the writers above quoted, lead me to believe that in the great majority of cases rumination is dependent on a condition of either neurasthenia or hysteria, and that it rarely occurs in healthy persons, although this may be the case. Heredity undoubtedly plays a part in the causation of the disease. The prospect of recovery in rumination is not good. Many cases improve to a great extent under appropriate treatment, and often with no treatment there are intermissions of one to three years, but sooner or later there is a return of the habit. The treatment consists mainly in attention to the general health of the patient.

Cutaneous Administration of Salicylates.

Cullen (*Journal of the American Medical Association*, May 21, 1898) says that Combensalle and Sigalas, of Paris, have called attention to the fact that if salicylate of soda is mixed with some oily vehicle and applied to the skin, it may be detected in the urine in five minutes.

A favorite recipe is the following:

Acid. salicyl. 10;
Spts. vini rect. 50;
Ol. ricini . . . . . 100. M.
Sig.—Use locally.

A tablespoonful of this mixture is poured into the palm of the hand and rubbed into the affected part for a few minutes; the part is then covered with oiled silk or rubber, and again enveloped in several thicknesses of flannel or cotton. The effect is marked. The pain disappears in a few minutes. This does not exclude the administration *per os*, but the drug may be given in smaller doses than usual.

If the oil of winter-green be substituted for the salicylate of soda, the effect will be still better.

Treatment of Tuberculosis of the Lungs.

Ziemssen (*Münchener medicinische Wochenschrift*, January, 1898) says that his experience with the new tuberculin has not been satisfactory, and that he fears no specific treatment can be found for the great number of cases.

The value of climatic treatment for lung tuberculosis is well known; the points in favor of high climates as compared with low are as follows:

(1) The air is purer, freer from dust, gas, and bacteria.

(2) The ozone is greater.

(3) The value of low atmospheric pressure is perhaps unsettled.

(4) The warmth of the sun is greater in winter, the air drier; there are many more sunny days.

(5) The red blood-cells are actually increased.

The points against high altitudes can be practically overcome by the rich. In the poor, he believes, we will have to build sanitariums at their homes. The

statistics of sanitariums, such as Görbersdorf and Falkenstein, show that patients may be treated about as successfully here as at the high points. He closes the article by this sentence: "I can see the cure of tuberculosis in physical dietetic, fresh-air treatment within well-ordered sanitariums. In this lays the future of a successful treatment for consumption."

Vomiting of Pregnancy.

Bacon (*American Journal of the Medical Sciences*, June, 1898) concludes a thoughtful article as follows:

(1) The abnormal irritability of the nervous system, including the vomiting-centre, is to be allayed by keeping the patient in the horizontal position, by attention to the skin, bowels, and kidneys, using rectal and, if necessary, hypodermic injections of salt solution.

(2) The hysterical condition, which is so commonly found present, should be controlled by strengthening the will and influence the dominant ideas of the patient.

(3) All sources of peripheral irritation should be discovered and treated.

(4) In extreme cases subcutaneous saline injections serve the threefold purpose: (*a*) dilating the blood and increasing vascular tension; (*b*) eliminating toxins through renal and intestinal emunctories; (*c*) furnishing two most important kinds of food.

(5) Induction of abortion is never indicated. At a stage when it is safe and efficient it is not necessary, and in extreme cases it adds greatly to the danger, rarely stops the vomiting, and can be substituted by the artificial serum.

Statistics of Sixty Cases of Typhoid Fever complicated with Hemorrhage from the Bowels.

Roland G. Curtin (Reprint from *Journal of the American Medical Association*, September 25, 1897) reports observations of the more important points in connection with hemorrhage of the bowels in typhoid fever. In the sixty cases collected, the first point referred to is age. There were none of the sixty cases under the age of ten years, but this may be accounted for by the fact that forty-eight of the sixty were drawn from hospitals where adults are generally treated. There were twenty-two females and thirty-eight males. Upon investigation it was found that since the cold water treatment was instituted the occurrence of hemorrhagic cases has considerably increased, according to the hospital records, and in addition the mortality of the hemorrhagic cases has largely increased,—viz., from five in seventeen to twenty-five in forty-three cases. The statistics would seem to indicate that it would be well to avoid cold applications to the skin where there is a tendency to hemorrhage or where it has already occurred. I would suggest that during the third week, when the sloughing process is most active, the cold bath or pack, if used at all, be used with great care. The temperature in twenty-six cases was lowered by the hemorrhage, in nine there was no seeming effect; and in seven there was an elevation immediately after, while seventeen were not noted one way or the other. By these figures we find that the fall in temperature is the best index of the time the blood is being lost, if the amount is large. The conditions that seem to indicate a fatal termination in hemorrhagic typhoid

fever cases are: (1) A tympanitic condition of the abdomen with a continual discharge of black clotted blood. The blood-vessels may sometimes be kept patulous by the distended conditions of the intestine. (2) Associated renal trouble, which alters the blood in some cases, rendering it less coagulable. (3) Marked organic heart-disease. The blood being impoverished and lessened in quantity is propelled slowly and the tissues are consequently imperfectly supplied with blood. Under these conditions a hemorrhage from the bowel becomes the "last straw that breaks the camel's back." (4) Cases of hemophilia. The blood is so altered that there is little likelihood of its being stanched.

Epidemic Cerebro-Spinal Meningitis.

Councilman, Mallory, and Wright (A Report of the State Board of Health of Massachusetts, 1898) have examined clinically 111 cases. Many of them were examined post-mortem.

The summary abstracted is as follows: Epidemic cerebro-spinal meningitis is an acute infectious disease, which is produced by a micrococcus characterized by its growth in pairs and by certain cultural and staining properties. The seat of the disease is the meninges of the cord and brain. It is possible that the nose is the portal of entry. There is an acute purulent inflammation in the pia-arachnoid. The cortex is affected by extension. The cord is always affected. The organisms are found in considerable numbers in the majority of acute cases. The surest method of diagnosis is by spinal puncture. In the early stage a fluid more or less clouded by pus-cells, containing the organisms, can be found.

There are no prodromata; there is vomiting and pain in the head. In most cases there is pain, stiffness, and muscular contraction of the neck. There is usually delirium, and in many cases unconsciousness passing into coma. Paralyses are common.

THERAPEUTICS.

UNDER THE CHARGE OF

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AND

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One Hundred Cases of Pulmonary Tuberculosis treated with Large Doses of Creosote.

Tamplough (*British Medical Journal*, May 28, 1898) reports 100 cases of pulmonary phthisis treated with large doses of creosote. In the majority of cases the following formula was prescribed: Creosoti, five minims; oleum morrhuæ, ad two drachms: mix. Three times daily after food. Five minims of creosote were added every other day up to a maximum of forty minims, three

times a day, so that on the fifteenth day of the treatment these patients were taking two drachms of the pure drug daily, with four drachms of cod-liver oil. When cod-liver oil could not be taken the creosote was given in mixture of compound tincture of gentian, licorice, and sherry wine. The burning sensation in the throat sometimes produced in swallowing the creosote is at once relieved by sucking a piece of lemon or sipping a little milk and water. In the series of 100 cases in which creosote was given in doses gradually increased to forty minims, three times a day, only five patients were unable to continue taking the drug. Of those patients who were able to take the drug, eighty-five took forty minims three times a day, and ten were having three drachms daily at the time of their discharge. Of the 100 cases, no fewer than sixty-two had disease of both lungs, and eighteen showed signs of cavitation, many were of an acute type, three had diarrhea, and four were suffering from albuminuria when the creosote treatment was commenced. In sixty-eight cases the symptoms either partially or entirely disappeared, the patients increased in weight, and the temperature fell, or remained unchanged in those chronic cases showing little rise in temperature. The average stay in hospital of these patients was about two months, and during this short time the average gain in weight was no less than four pounds. In many cases the physical signs also improved, but not in comparison with the symptoms. Of the remaining thirty-two cases, fifteen did not alter materially; in seven the disease showed signs of advancing; five patients died while under treatment; and five were unable to take the drug. The albumin disappeared from the urine in all of those cases suffering from albuminuria, although in one case this did not occur until after the patient was taking 165 minims of creosote daily. In two of three cases with diarrhea this grave complication was relieved. The following conclusions are drawn:

(1) The best beechwood creosote can be given with benefit, in amounts varying from 120 to 240 minims daily, in cases of pulmonary tuberculosis.

(2) The drug is best administered in cod-liver oil, or in spiritous solution, and in some cases the "creosote chamber" or oro-nasal inhaler may be ordered in addition, with advantage.

(3) The dose should be small at first, but it can be rapidly increased to forty minims, three times daily, for an adult: In three cases doses of thirty minims, three times a day, were well borne by children.

(4) Large doses rarely cause any gastric disturbance; on the contrary, the appetite is frequently increased; symptoms of dyspepsia disappear, and cod-liver oil is more easily assimilated. The cough, expectoration, and night-sweats are diminished, and the physical signs improved.

(5) Owing to its disinfectant action in the alimentary canal the drug probably diminishes the risk of tuberculous enteritis by autoinfection when patients swallow their sputa, but owing to the increased peristalsis, which is created by creosote, it is usually contraindicated in cases where the ulceration is already advanced.

(6) The drug does not tend to cause hemoptysis, but rather to prevent its recurrence.

(7) Creosote does not irritate the normal mucous membrane of the genito-urinary tract.

(8) Owing to its extremely small cost, pure creosote can be given to a much larger number of patients than the carbonates of creosote and guaiacol, which respectively cost four and twelve times as much as the older drug.

Treatment of Diphtheria.

Richardiere (*Semaine Médicale*, April 20, 1898) reports 696 children with diphtheria who were treated in the Hôpital Trousseau in 1897. The diagnosis in all cases was confirmed by bacteriological examination. Of the whole number 125 died, a mortality of 17.9 per cent.; thirty-one of these died within twenty-four hours of admission; excluding these the mortality stands at 14.1 per cent. Of the total number 433 did not require operation, and eighteen died, a mortality of 4.1 per cent. Out of 172 who were intubated forty-seven, or 27.3 per cent., died, almost invariably of broncho-pneumonia. Primary tracheotomy was done eleven times, with five deaths. Tracheotomy after intubation was done fifty-six times, with forty-five deaths. Treatment was almost entirely by antitoxin serum. Children over two years received twenty cubic centimetres, and under one year ten cubic centimetres. In most cases a single injection sufficed to check the extension of false membrane. In benign cases irrigation of the throat and nose was carried out with boiled water, in severe cases a solution of 1 in 4000 of potassium permanganate was used. If false membrane persisted, or reappeared, a solution of glycerin and corrosive sublimate (1 to 30) was used locally.

Hot Baths in Chlorosis.

Rosin (*Medical News*, May 14, 1898), at the sixteenth annual German Congress for Internal Medicine, recently held at Wiesbaden, Germany, spoke as follows upon the above subject:

One of the most promising recent advances in the treatment of obstinate cases of chlorosis is diaphoresis. Better than the dry, hot-air baths for this condition are the hot-water baths. The idea is an adoption of a Japanese custom. The Japanese, when very tired, get into a hot bath up to 45° C. (110° to 115° F.) which proves very refreshing. Chlorotics are persistently tired. Their muscles are easily exhausted because badly supplied with nutritive material. A characteristic symptom that Dr. Rosin finds in most of his chlorotics, and which makes them come complaining of something the matter with their lungs, is pain between the shoulder-blades. The erector spinæ muscles suffer from the act of keeping the patient erect. Slight pinching of the muscles or tapping of them gives pain. The reflex action of the hot baths causes more blood to be brought to the muscles and relieves this muscular discomfort. The removal of water from the hydremic blood by diaphoresis reacts on the nutrition of all the tissues, and the blood-making organs take up their functions once more. A bath at 32° R. (105° F.) with a wet towel wrapped around the head, though Dr. Rosin has seen no inconvenience result when this precaution was neglected, is given for one-half to three-quarters of an hour. This causes plentiful perspiration during the bath. It is followed by a cold douche to prevent further perspiration which would be exhausting. A bath is given three times a week for three to four weeks.

Salophen.

Drews (*Therapeutische Monatshefte*, Heft iii, 1898) reports of this drug as follows: (1) The remedy is harmless in daily amounts from forty-five to

ninety grains. (2) Since it is odorless and tasteless, it can be administered as a powder, in compressed tablets with starch or sugar of milk, or as pills. (3) It passes through the stomach unchanged, without producing any gastric disturbances, and in the intestine is so slowly broken up into salicylic acid and aceto-paramidophenol that the former acts *in statu mascendi* for a considerable period of time, but does not give rise to untoward action. (4) It is an excellent antirheumatic, acting in acute and subacute articular rheumatism equally as well as do salicylic acid and sodium salicylate, but without their unpleasant after-effects. (5) In chronic articular rheumatism it is no more useful than the above-mentioned drugs. (6) It is an excellent antineuralgic and analgesic in cephalalgia, migraine, odontalgia, facial, trifacial, and intercostal neuralgia, and in the nervous form of influenza. (7) It produces good results in chorea. (8) It acts well in various skin affections which are accompanied with itching,—prurigo, urticaria, pruritis of diabetes, eczema, and psoriasis.

Contributions of Bacteriology to Therapeutics.

Park (*Pediatrics*, November, 1897) summarizes the contributions of bacteriology to therapeutics as follows:

Tetanus antitoxin is very valuable as an immunizing agent against possible infection in cases of lacerated wounds or before serious operations in localities where tetanus is not infrequent. Its power in these cases is marvellous and certain. In acute cases developing within a week and running a course of forty-eight or seventy-two hours, as a treatment it is of very little value, but when the incubation is longer and the course more subacute benefit will follow its use. Along with the usual treatment it should be given in doses of twenty to fifty cubic centimetres twice daily, and beginning at the earliest possible moment.

Diphtheria.—The results of the antitoxin treatment are so well known that the writer's conclusions need not be repeated.

Diseases due to the Pneumococcus.—These are pneumonia, pleurisy, pericarditis, endocarditis, abscess, cerebro-spinal meningitis, etc. The author does not think that the serum is of any practical value in the treatment of developed pneumococcus infection; nor does he think that it ever will be. It, however, is harmless and there is no objection to its use.

Streptococcus Infection.—His conclusions are: The preparations of anti-streptococcic serum now on the market are either quite weak or entirely wanting in curative substances. We are justified in using serum only when it has been recently tested and shown to have some value in preventing infection in animals. The serum preserves its strength only for a short time.

Treatment of Malignant Tumors by the Mixed Streptococcic and Prodigiosus Toxins.—Only very temporary improvement follows their use in carcinoma. In spindle-celled sarcoma the result of the treatment has been excellent, in round-celled, not so good, and in melanotic, the action is the least marked.

New Tuberculin.—The benefit from this in treatment has not yet been estimated, because the samples used have been found to be contaminated. In some vials living and virulent bacilli of tuberculosis were found, which when injected into animals caused tuberculosis.

Hydrophobia.—The treatment for this disease is still *sub judice*, though it is claimed that the percentage of cases developing hydrophobia after bites from

rabid animals is very much less in those treated than in those not. A few cases have, however, developed the disease while under the full influence of the serum.

Orthoform.

Kallenberger (*Berliner klinische Wochenschrift*, March 21, 1898) reports his experience with orthoform in surgical practice. It appears as a fine white non-hygroscopic powder. It acts as an anesthetic on exposed sensory nerves. It is non-poisonous; the author has used as much as sixty grains in a week upon a large raw surface. It is an antiseptic. He has employed it successfully in fresh wounds, malignant ulcers, burns, syphilitic ulcers, and in toothache when the nerve was exposed. Pain generally disappears in from three to five minutes, the local anesthesia lasting on an average for thirty-five hours. When exudation is abundant, an ointment is preferable to the powder, as the latter is liable to be washed away. Orthoform also limits exudation. It has been used internally in laryngeal ulcers, and in gastric ulcer and carcinoma. Neumayer recommends the chloride for internal use, but for surgical purposes the chloride is not suitable, on account of its irritating properties.

Medicines that should not be prescribed in Powders.

Medicines that should not be prescribed in powders (*Journal of the American Medical Association*, April 2, 1898) can be classified into (1) those that absorb moisture readily from the air; (2) those which form a fluid in combination with other substances; and (3) those that are decomposed by the oxygen of the air and change color. In the first class belong the acid phosphates and their derivatives, the phosphoglycerates. These salts put up in powders liquefy in twenty-four hours; also sodium bromide, which is extremely deliquescent; crystallized calcium chloride; strontium chloride; ammoniac citrate of iron and ferricopotassic tartrate; piperazin and lysidin; chloral, dry vegetable extracts, and, in general, all products prepared by evaporation in a vacuum, especially desiccated peptones and extracts of animal organs. The second group includes the substances that alone are not affected by the air, but combined, absorb moisture rapidly; such are antipyrin and sodium salicylate. The third group comprises the alkaline and ferroalkaline iodides and the aristols. A little trick that sometimes prevents trouble is to add a certain amount of liquorice powder or cinchona; also to keep the powders in an air-tight glass jar.

OBSTETRICS.

UNDER THE CHARGE OF

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ASSISTED BY

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The Phonendoscope in Pregnancy.

Anastasiades (*Presse médicale*, February 16, 1898) recommends the employment of the phonendoscope for the purpose of outling the uterus and fetus. He places the instrument in the median line and percusses outward in horizontal lines. The portion of the uterus which is in contact with the abdominal wall is represented by a line joining the points at which the sound suddenly diminishes, while the line joining the points at which it totally disappears outlines the extreme limits of the uterus. For this examination the woman rests in the dorsal position. In order to outline the fetus the woman rests on her knees and leans forward with her elbows on the shoulders of an assistant, the fetus thus falling forward from gravity. This method, the author claims, will be of special value in cases of hydramnios, double pregnancy, and anomalous uteri.

The Placenta at an Early Stage.

Herzog (*American Gynecological and Obstetrical Journal*, April, 1898) has made a careful study of a placenta of nine weeks' growth, found in a uterus which had been extirpated on account of subserous myomata. The peculiar features discovered were as follows: (1) In the amnion, near the insertion of the cord, there were found small cavities, contained between two layers of amniotic mesoderm. It is possible that these small cavities are due to a reduplication of the amnion occurring at a very early stage of its formation. (2) The chorionic epithelium and that of the villi present themselves in two very distinct layers, each of characteristic differentiating features. The Langhans "Zellschicht" has been found in a single-cell layer only, nowhere as a double or a triple layer. The epithelium does not possess a basement membrane. (3) Plasmodial (syncytial) buds springing from chorion and villi are very abundantly found. Plasmodial islands in the intervillous spaces do not exist; what appears as such are buds separated from their bases by the direction of the cut of the knife. (4) Kastchenko's "Zellknoten" are likewise not at all islands floating in the intervillous spaces, but decidual and syncytial tissues detached from the decidua in the same manner as the buds are detached. (5) The chorion at the antiplacental pole still shows remnants of villi. (6) The decidua serotina, as well as the vera, show already patches of tissue in a state of coagulation-necrosis. Where this latter is manifest there are found numerous leucocytes, many of which are in a process of nuclear fragmentation. (7) The decidua reflexa is in that stage of degeneration first minutely described by Minot. (8) Evidences are still found in connection with the decidua reflexa which prove that it once was very vascular and that the intervillous space filled with blood once

surrounded the whole ovum. (9) The decidua serotina is not throughout its whole extent lined by vascular endothelium, nor have chorion and villi such a lining. (10) Changed remnants of the original uterine epithelium are occasionally found on the surface of the serotina and everywhere on the surface of the vera. (11) The open spaces of the spongiosa, the changed uterine glands, show epithelium varying from the normal to a stage of complete degeneration, and these spaces are not filled with blood, but with mucoid or hyaline material, cell-remnants, and hyaline spheres. (12) The intervillous space contains maternal blood, which in its corpuscular elements is very different from the fetal blood found in the blood-vessels of the chorion and villi. (13) The main, if not the exclusive, source of the canalized fibrin is the maternal blood in the intervillous space. (14) In this space are also found numerous hematoidin crystals. These insoluble derivatives of degenerating red blood-corpuscles are in part carried into the uteroplacental veins and from there into the general maternal circulation. They stand most probably in a causal relation to the comparative frequency of embolism and thrombosis during pregnancy and puerperium.

Dilatation of the Fetal Urinary Bladder.

Schatz (*Münchener medicinische Wochenschrift*, No. 15, 1898) presented to the Rostock Medical Society a fetal body of six months' growth. The mother in her first pregnancy miscarried at the seventh month, the fetus presenting an abdominal distention, complete absence of the external genitalia, and a number of other abnormalities. The present specimen, the product of the second conception, was especially interesting in that it demonstrated conclusively that there was active urinary secretion during uterine life, and also that there is probably evacuation of the bladder into the amniotic cavity. The fetal abdomen was about the size of an adult head, the enlargement being due to an enormously dilated bladder. The penis and scrotum were rudimentary and there was complete absence of the anal and urethral orifices. The ureters and urachus were dilated, the former being as large as an adult finger. The left kidney was the seat of a cystic degeneration; the right was normal. There was a small perforation in the posterior wall of the bladder and through this some quantity of urine had escaped into the abdominal cavity. In lower animals the question of urinary secretion has long been decided, since the urine is to be found in the allantois while the excretion of the skin is found in the amniotic cavity. In the human species there has been some doubt as to the existence of the renal secretion, since, apparently, normal and healthy offspring have been born with complete absence of the renal organs. This is a fallacious deduction, however, since the fetus possesses both in the skin and in the placenta organs which may take the place and perform the functions of the kidneys.

GYNECOLOGY.

UNDER THE CHARGE OF

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ASSISTED BY

H. D. BEYEA, M.D., AND H. L. WILLIAMS, M.D.

PREGNANCY FOLLOWING VENTROFIXATION, WITH IMPROVEMENTS IN TECHNIQUE.

A. LAPTHORN SMITH, M.D., M.R.C.S. (Eng.), in a paper read before the American Gynecological Society at Boston, May 24, 1898, in an article on the above subject, comes to the following conclusions, based upon about 2500 cases by forty-one operators, including 111 cases of his own, reported in reply to a circular letter of inquiry.

(1) That as far as curing retrodisplacements is concerned, whether retroflexion, retroversion, anteflexion with retroversion, and also prolapse of the uterus, ventrofixation with two buried silk stitches passing through peritoneum and fascia gives the most reliable results. Failures are unknown when the operation is performed in this way.

(2) Ventrofixation should be reserved for cases in which abdominal section is necessary for other reasons, such as detaching of adhesions and the removal of the diseased tubes which caused the adhesions. When it is expected that pregnancy may follow, some other operation should be chosen, because

(3) Although pregnancy only followed in 148 cases out of about 2500, still in 30 per cent. of these, or thirty-six, there was pain, miscarriage, or difficult labor, requiring obstetrical operations.

(4) When suspensio uteri was performed,—that is, the uterus attached to the peritoneum,—only a few relapses occurred; but, on the other hand, the patients were free from pain during pregnancy and the labors were less tedious; neither did they require resort to serious obstetrical operations. The uterus should therefore be suspended rather than fixed to the abdominal wall in all cases in which any part of the ovary is allowed to remain.

(5) A third method, it is claimed by some,—namely, the intra-abdominal shortening of the round ligaments,—is preferable to either ventrofixation or suspensio uteri. This may be done either by drawing a loop of the round ligament into the loop which ties off the ovary and tube, or, in cases in which the latter are not removed, simply to detach them from adhesions and shorten the round ligament by drawing up a loop of it and stitching it to itself for a space of about two inches. By this means the round ligament develops as pregnancy advances, and the dragging and pain, and other more serious accidents which are present in 30 per cent. of the cases of ventrofixation, are certainly avoided.

(6) If the uterus is attached to the abdominal wall, the stitches should be kept on the anterior surface, but near the top of the fundus; the complications were more frequent when there was too much anteversion than was the case when the anterior surface of the fundus was attached to the abdominal wall.

(7) As large a surface as possible should be made to adhere, by scarifying both the anterior surface of the fundus and the corresponding surface of the

abdominal peritoneum, in which case one buried silk suture will be sufficient to keep the uterus in good position.

(8) Several of my correspondents mentioned incidentally that they knew of many cases of pregnancy after Alexander's operation, and that in no case was the pregnancy or labor unfavorably influenced by it. Alexander's operation should, therefore, be preferred whenever the uterus and appendages are free from adhesions.

(9) The results of Alexander's operation are so good that even when there are adhesions it might be well to adopt the procedure of freeing the adhesions by a very small median incision and then shortening the round ligaments by Alexander's method; after which the abdomen should be closed. This could be done without adding more than one-half of 1 per cent. to the mortality, which in Alexander's operation is *nil.*

Primary Tuberculosis of the Vulva.

Paoli (*La Gynécologie,* 1897, No. 6) reports five interesting cases of the above affection, which he believes to be more common than is generally supposed. Paoli believes that the disease is directly communicated during coitus, the primary site of infection being located in the vestibule from whence it extends to the neighboring tissues.

The clinical manifestations are ulceration with hypertrophy of the labia. The disease tends to remain localized for a long period, and runs a chronic course, the general health being but slightly affected.

Contrary to the general opinion the inguinal glands are but rarely involved. Intense congestion and small round-celled infiltration is the characteristic microscopic appearance. Caseous degeneration rarely takes place, and the lesion usually heals spontaneously.

When tuberculosis of the external genitals is secondary, the disease usually progresses much more rapidly, and is far more malignant in type.

The treatment consists in the entire removal of diseased tissue, and a considerable portion of the urethra can often be removed without deleterious results.

Vaginal Hysterectomy.

Mainzer (*Archiv für Gynäkologie,* Band liv, Heft 3) reports from Landau's clinic, in Berlin, 200 operations *per vaginam* in which the uterus, tubes, and ovaries were removed for chronic inflammatory conditions of the adnexa. No injuries to the ureters or bladder occurred, and the mortality of the operations was 4 per cent. He claims that one of the greatest advantages of following this route is the absolute freedom from the danger of acute intestinal obstruction, not one case having occurred in the entire series.

Mainzer maintains that when the uterus is removed with the adnexa, the disturbances of induced menopause are far less than when tubes and ovaries only are removed. In 25 per cent. of cases premature menopause was followed by a series of nervous symptoms, but these were greatly relieved by the employment of ovarian extract.

Age has no apparent influence on the appearance or absence of these

symptoms. Sexual desires were rarely altered and psychical disturbances were never observed.

Mainzer states that Landau holds that where the uterus only needs to be removed the tubes and ovaries should be left *in situ*, but where the adnexa require removal and the uterus is healthy, the uterus should be removed also.

PATHOLOGY.

UNDER THE CHARGE OF

JOHN GUITERAS, M.D.,

ASSISTED BY

DAVID RIESMAN, M.D.

Suppurative Cholangeitis.

Parsons (*Canadian Practitioner*, March, 1898) reports a case of suppurative cholangeitis, and presents an interesting study of the subject. Biliary retention, from whatever cause, appears to be the most frequent predisposing factor, and calculi the most common cause of the retention. From the experimental side there is confirmation of this point. Charcot and Gambault have produced biliary infection with angio-cholitis and biliary abscess by ligating the common duct, and Netter found the bile septic (staphylococcus aureus, colon bacillus) twenty-four hours after similar ligature. Quite apart from retention, infection appears to take place. Hall White has reported a case complicating typhoid fever. Mayo-Robson observed it as a complication of influenza. It has also been found after cholera, yellow fever, pyemia, puerperal septicemia, and dysentery. Calculi may give rise to it by direct irritation without producing obstruction. Not only have calculi been found in the lower bile-passages, but in the intrahepatic radicles, and within the cavities of secondary abscesses (von Ziemssen). Instances of cholangeitis are also on record with calculi only in the gall-bladder. It has been suggested that the calculi in some cases are the result of changes in the upper bile-passages and not the cause.

Infections of the biliary tract are most commonly of an ascending character. Chauffard refers to a descending or toxic infection, such as is seen in acute phosphorus-poisoning, and an ascending or bacterial.

The bacteriology of the bile and bile-passages has an important bearing on this matter. Normally these are sterile, save at the outlet, and in the ampulla of Vater, where Duclaux and Netter have found the colon bacillus and staphylococcus pyogenes aureus; and we know the duodenum, at the papilla, to be the natural habitat of a long list of organisms of greater or less virulence. The boundary line between the sterile and septic zones is not well marked, and no great barrier against infection, and the bactericidal property of the bile, formerly believed to be so great, is now called in question by many. It is found that the colon bacillus and staphylococcus aureus readily multiply in it, and Birch is of the opinion that any failure of organisms to develop is due more to a poverty of nourishing substances than to any bactericidal action, which, at the most, he believes to be slight.

Three modes of infection have been suggested: (1) through the wall of the gall-bladder, (2) by the blood, and (3) the ascending infection. The first is looked upon as hardly possible; the second is improbable; and the last is that now generally accepted. A striking example of this is a case reported by Ferguson, of Chicago. He had operated for cholecystitis, and all went well for several days, when all the signs of a general septicemia developed, terminating fatally. Autopsy showed a diffuse suppurative cholangeitis.

The organisms found in association with cholangeitis are numerous. Among them may be mentioned the staphylococcus pyogenes aureus (Netter, Martha, Dupré, Girode, Fränkel), staphylococcus albus (Dupré and Klebs), streptococcus pyogenes (Dupré and Malvoz), pneumococcus and staphylococcus albus (Girode and Gilbert), typhoid bacillus (Gilbert, Girode, and Dupré).

Dupré has also isolated a diplococcus, a diplobacillus, and an encapsulated bacillus, as yet unidentified, and the bacillus saprogenes liquefaciens. The bacillus coli communis has frequently been found, and some writers uphold its causative influence very persistently. Mayo-Robson says it produces an exudative inflammation in the bile-passages and abscess. We know that its virulence varies greatly; at one time it is harmless, at another it may produce a local abscess, and again a fatal septicemia.

Chauffard and others think it plays an important part in biliary infections, equal to that of the pyogenic cocci in infections of the genito-urinary tract. It is, however, such a widely distributed organism that its presence in pathological conditions is often looked upon with suspicion, and especially so in post-mortem work, now that so much is said regarding the invasion of the body by organisms during the death struggle. Then again, the work of Barbacci on perforative peritonitis shows the tendency of the colon bacillus to overgrow other bacteria that have originally been present.

The same controversy has arisen over the bacteriology of appendicitis, the colon bacillus being the chief infecting organism, according to some writers. In a series of cases I have found a variety of bacteria present, the number depending upon the duration of the disease,—the earlier the case the greater the number of species found. In several cases a streptococcus was almost overlooked by reason of the small size of the colonies. In a small proportion the colon bacillus alone was found. The ease with which some organisms—especially the streptococcus—may be overlooked in the presence of one growing so luxuriantly as the colon bacillus must be apparent in all methods of isolation. The point is that we find the colon bacillus in purulent inflammations, and in many cases find it alone.

As above stated, it can produce pathological conditions, so for the present we must abide by our findings.

The most important accompaniment of suppurative cholangeitis is a general infection, said to be always fatal.

Endocarditis is frequent, and Netter and Martha have found the same organisms on the heart-valves as in the bile-ducts. Labadie-Lagrave speaks of purulent meningitis; Courvoissier, of pylephlebitis, phlebitis of hepatic vein, thrombosis of a branch of the hepatic artery with infarction, and perihepatitis with adhesion to surrounding viscera. The abscesses secondary to cholangeitis may vary from the size of a pea to that of a child's head. One, the size of a child's head, was present in a case complicating typhoid fever (Klebs). These

may travel in almost any direction, and have been known to open into the peritoneum, stomach, colon, or duodenum, through the diaphragm into the pleural cavity, and into the abdominal wall. Of the cases due to lumbricoid worms, one opened into the lung, and another formed an abdominal fistula through which a worm was discharged.

Primary Sarcoma of the Stomach.

Brooks (*Medical News*, May 14, 1898) reports a case of primary multiple sarcoma of the stomach following a gunshot wound, and concludes with the following remarks:

Primary sarcoma of the stomach is an exceedingly rare disease. No doubt, however, it is more frequent than the number of cases reported would seem to indicate, since microscopic examinations are not universally made in cases of gastric tumor, for the tendency is to rely upon gross appearances, which are extremely unreliable in differentiating between ordinary carcinoma and some of the varieties of sarcoma and endothelioma.

In most of the reported cases the growth has been located at the lesser curvature of the stomach, or its maximum growth has been in this region. It is somewhat unusual to find sarcoma originating after adult life, and the advanced age at which the growth developed, not only in this case, but also in several of the cases recorded in literature, is quite striking.

Of the fifteen cases of primary, gastric sarcoma which the author has found reported, six have been round-celled sarcomas, four of the spindle-celled variety, two myosarcoma, and two of uncertain type. The case reported by Hadden as lymphosarcoma is beyond doubt one of perithelioma, as the author very perfectly describes the structure of this, at that time, unrecognized growth. In none of these cases did ulcer or traumatism of the stomach wall precede the development of the growth, and in this respect the author believes the present case to be unique.

Hepatitis from Intestinal Autointoxication.

Rovighi (*Morgagni*, No. 15, 1897, and *American Medico-Surgical Bulletin*, May 10, 1898) studied this subject in six cases suffering from severe intestinal disorders. Five of these patients died, having the symptoms of Laennec's cirrhosis. The other case improved under appropriate treatment.

By injecting indol, skatol, and phenol in rabbits and observing their action upon the liver and in general, he experimentally confirmed the clinical observations.

Acute poisoning with indol and skatol produces great dilatation of the portal vessels and the central vein; chronic poisoning, especially with indol, changes the cellular protoplasm, which appears more granular, with swelling or double nuclei and slight connective-tissue infiltration around the vessels, and in the intracellular spaces. In the epithelium of the renal canaliculi yellowish granulations appear; the spleen contains leucocytes, together with destroyed red blood-corpuscles.

In acute phenol-poisoning he observed marked congestion of the vessels of the liver; while in chronic poisoning slight alterations of the protoplasm of the hepatic cells, thickening of the walls of the perilobular veins, and slight infiltration of connective-tissue elements were noticed.

The experimental hepatic lesions observed are very similar to those existing in patients suffering from intestinal disorders, especially fecal stasis. Moreover, urobilin is present in both instances. The lesons observed do not constitute a true interstitial hepatitis; but the alterations of the protoplasm of the hepatic cells, and the slight connective-tissue infiltration around the portal vessels and in the intercellular spaces, form the origin of Flanot's and Boix's monolobular and intralobular cirrhosis. According to the author thus may be explained the production of hepatic cirrhosis without the influence of alcohol, malaria, tuberculosis, or syphilis.

DERMATOLOGY.

UNDER THE CHARGE OF

LOUIS A. DUHRING, M.D.,

ASSISTED BY

M. B. HARTZELL, M.D.

The Lesions of Erythema Induratum.

Audry (*Annales de Dermatologie et de Syphiligraphie*, No. 3, 1898) concludes from a histological and bacteriological examination of the lesions of erythema induratum of Bazin that this affection is no way connected with tuberculosis. The histological lesions appear as a fatty degeneration developed upon a territory affected by considerable spontaneous edema. The inflammatory signs are reduced to a minimum. The malady is to be regarded as connected with lymphatism, and not with scrofula; and the author is inclined to accept the view held by Hardy, that erythema induratum is only a chronic, sometimes ulcerating, variety of erythema nodosum.

Lymphadenia of the Face.

Hallopeau and Laffitte (*Annales de Dermatologie et de Syphiligraphie*, No. 3, 1898), at a *séance* of the Société Française de Dermatologie et de Syphiligraphie, presented a woman, 66 years of age, affected by an enormous swelling of the middle portion of the face. The disease, which had commenced with swelling and redness of the left side of the nose, gradually spread to the neighboring parts. The affected area was the seat of severe itching accompanied by intense pruritus of the general surface, the eyebrows having been almost completely rubbed off by the scratching. While the limits of the affected parts were clear there was no abrupt separation from the sound skin. About the umbilicus there was an eruption of flat, polygonal, shining papules arranged linearly; and above this region there was a crusted and scaling erythema which was the seat of severe pruritus. Under the right hypochondrium and in the bend of the left elbow there was likewise an eruption of lichenoid papules. Examination of the blood showed a marked increase in the white corpuscles, there being 250,000 leucocytes to 4,900,000 erythrocytes. As the result

of a study of this case it is concluded that leukemia may be accompanied by eczematous and lichenoid eruptions like those of mycosis; that it may give rise to intense pruritus and multiple adenopathy without appreciable alterations of the skin, and that it may cause thickening of the skin accompanied by redness over large areas.

Treatment of Tinea Tonsurans.

Sheffield (*New York Medical Journal*, May 14, 1898) claims that by the following method every case of ringworm of the scalp may be cured in from three to six weeks. The hair is to be clipped close to the scalp, and the following mixture thickly applied by means of a painter's brush, once every day, for five successive days:

℞ Acidi carbol.,
Ol. petrolei . . . . . āā 65;
Tinct. iodi.,
Ol. ricini . . . . . āā 110;
Ol. rusci . . . . . q.s. ad 500.

On the sixth day the application is to be wiped off with a rag dipped in olive oil, the hair clipped again, and the scalp washed thoroughly with green soap and a soft nail-brush. This process is to be repeated regularly for three or four weeks, and is to be then followed by the application of a 10-per-cent. sulphur ointment for a few days. Finally, the following lotion is to be used for two weeks:

℞ Resorcin,
Acid. salicylic. . . . . āā 16;
Alcohol 120;
Ol. ricini . . . . . q.s. ad 500.

The Therapeutic Employment of Tuberculin-R.

Scheuber (*Archiv für Dermatologie und Syphilis*, Band xlii) who has used tuberculin-R in more than thirty cases of cutaneous disease, chiefly lupus vulgaris, concludes as follows: In very rare cases injections of tuberculin fail to produce any reaction. In most cases reaction occurs at the place of injection and in the disease foci. A general reaction, which manifests itself by a considerable elevation of temperature, can never be avoided with any certainty, even with a repetition of the same dose. In the beginning of the injection treatment a certain degree of improvement occurs, but never healing of the local affection. A dose of twenty milligrammes is not sufficient to cause the disappearance of the process, and even greater doses are not followed by final healing since the improvement is noted only in the beginning of the treatment, the process becoming stationary towards the end of it. In a series of cases in which the injection treatment was carefully carried out, and in some in which operative removal of diseased tissue was practised because of recurrences, no immunity appeared. Treatment with the new tuberculin offers no essential advantages over the old tuberculin; and the complications observed make it advisable to carefully watch the cases so treated if one desires to avoid disagreeable surprises.

Congenital Bullous Dermatitis with Epidermic Cysts.

Bowen (*Journal of Cutaneous and Genito-Urinary Diseases*, June, 1898) reports the following case: The patient was a girl, 12 years of age, of American birth, without any ascertainable hereditary tendency to cutaneous disease. Since three weeks of age variously sized bullæ, often with hemorrhagic contents, constantly appeared symmetrically on the extensor surfaces of the elbows and wrists, backs of the hands and fingers, the anterior surface of the knees, and on the dorsum of the feet. Lesions at times appeared on the face, the mucous membrane of the mouth, the palms of the hands, and on the front of the legs. Bullæ were often produced by slight blows. In situations where they repeatedly appeared in great numbers the skin was very hyperemic, thickened, and showed slight but perceptible scaring. In the same situation bodies closely resembling milia were to be seen, which had a tendency to group and form circles; these lesions were most evident over the articulations of the hands and fingers.

MISCELLANEOUS.

The First Nathan Lewis Hatfield Prize for Original Research in Medicine.

The College of Physicians of Philadelphia announces through its committee that the sum of $500 will be awarded to the author of the best essay in competition for the above prize.

Subject: "A Pathological and Clinical Study of the Thymus Gland and its Relations."

Essays must be submitted on or before January 1, 1900.

Each essay must be typewritten, designated by a motto or device, and accompanied by a sealed envelope bearing the same motto or device and containing the name and address of the author. No envelope will be opened except that which accompanies the successful essay.

The committee will return the unsuccessful essays if reclaimed by their respective writers or their agents within one year.

The committee reserve the right not to make an award if no essay submitted is considered worthy of the prize.

The treatment of the subject must, in accordance with the conditions of the Trust, embody original observations or researches or original deductions.

The competition shall be open to members of the medical profession and men of science in the United States.

The original of the successful essay shall become the property of the College of Physicians.

The Trustees shall have full control of the publication of the memorial essay. It shall be published in the Transactions of the College, and also when expedient as a separate issue.

Address J. C. Wilson, M.D., *Chairman,*
College of Physicians,
219 South Thirteenth Street, Philadelphia, Pa.

Interesting Figures about Large Universities.

The University of Pennsylvania is the third of the large institutions of learning in America in point of age. Harvard dates from 1636, Yale from 1701, Pennsylvania from 1740. Next in line comes Princeton, 1746; then Columbia, 1754.

The growth of these institutions, which, with Cornell, form the group of the largest and most important universities in the eastern part of the United States, has been the subject of many an essay, and the particular development of each is familiar to almost every man, be he an Alumnus of one or the other or not, who is interested in the advance of education. It is, however, never amiss to gather information upon subjects with which one ought to be familiar, and as a matter of interest, the tables given below may be profitably digested by the alumni of any one of the universities comprised therein.

Early statistics in this connection are difficult to obtain, and, for many reasons, the figures in the earlier catalogues, while affording striking contrasts to those of to-day, do not form a reliable basis of comparison.

Writers of the history of our own university divide her life into epochs, dating a new impetus in her growth and development from the removal to, and occupation of, the new buildings in West Philadelphia, in 1873. At that time the student list contained 780 names. The development which was supposed to have commenced was gradual, but may have had a very large bearing upon the status of our University to-day. In 1878, the number of students was 940; in 1883, 1000; in 1889, 1222. Since which time the number has more than doubled, the increase being 125.2 per cent. To-day Pennsylvania stands second on the list of the larger universities of the East, with Harvard first, Yale third, Columbia fourth, Cornell fifth, and Princeton sixth. The increase in the total number of students of all these

universities in the seven years amounts to 32.47 per cent. Pennsylvania has contributed 31.41 per cent. of the increase.

STATEMENT OF THE NUMBER OF STUDENTS REGISTERED AT THE UNIVERSITIES NAMED.

	1892.	1893.	1894.	1895.	1896.	1897.	1898.	Percentage of increases. 1891–98
Harvard	2660	2,970	3150	3292	3290	3600	3674	39.7
Univ. of Pa. . .	1701	2,004	2205	2300	2500	2752	2752	61.7
Yale	1720	1,930	2200	2375	2400	2415	2415	40.4
Columbia . . .	1756	1,573	1641	1805	1943	1871	1925	9.4
Cornell	1490	1,621	1727	1801	1688	1800	1808	21.3
Princeton . . .	980	1,060	1092	1109	1090	1080	1080	10.2

—*Alumni Register.*

BOOK NOTICES.

CLINICAL LESSONS ON NERVOUS DISEASES. By S. WEIR MITCHELL, M.D., LL.D. (Edin.). Philadelphia and New York: Lea Brothers & Co.

This volume is a collection of essays on certain neurological subjects, the most important being hysteria, recurrent melancholia, some disorders of sleep, erythromelalgia, rotary movements in the feeble-minded, pseudocyesis, reflex ocular neuroses, the treatment of sciatica, wrong reference of sensations of pain, and choreoid movements. Apart from their intrinsic value, all the articles are characterized by that excellence of style for which the author is so deservedly famous. The only regret the reader has to offer at the close of the volume is that the series was not more extended. Now that the subject of the relation of eye-strain to various neuroses is attracting so much attention in certain quarters, it is well to hear what Dr. Mitchell, a pioneer in this work, has to say upon the subject. In commenting upon the remarkable results claimed to have been obtained in epilepsy by cutting tendons, Dr. Mitchell says: "I can only say that we have failed to obtain like results in our own attempts to cure epilepsy by the correction of various obvious refractive errors or by cutting tendons. I neither believe nor disbelieve. When I can see two or three cases of cure of undoubted epilepsy by tendon-clipping I shall want to recommence. So far I have had only disappointment, and others here who began to cut tendons with enthusiastic hope have, like me, got no good for their patients out of an industriously acquired experience in this direction."

The chapter on erythromelalgia, a disease first described by Mitchell, is an admirable presentation of the subject. Indeed, the whole volume is replete with useful suggestions as to diagnosis and treatment. We heartily commend it to all who are interested in these subjects.

Syringomyelia. By Guy Hinsdale, A.M., M.D. Philadelphia: The International Magazine Company; P. Blakiston, Son & Co., 1897.

This essay was awarded the Alvarenga prize of the College of Physicians of Philadelphia for the year 1895. It is based on an analysis of the original reports of 118 cases, which have been published since 1890, and a study of two unpublished cases. The bibliography placed in evidence is the most complete that has thus far been collected, and amounts to 514 references. The author inclines to the view, now very commonly accepted, that Morvan's disease is but a type of syringomyelia. The study is an exhaustive one, and fairly presents all that is known of this interesting disease. It will be consulted as a work of reference for many years to come.

The Surgical Complications and Sequels of Typhoid Fever. By William W. Keen, M.D., LL.D., Professor of the Principles of Surgery and of Clinical Surgery, Jefferson Medical College, Philadelphia, etc. Philadelphia: W. B. Saunders, 1898.

Considering the constant occurrence of typhoid fever in every community, and the frequent association of surgical complications therewith, it is extraordinary that this subject has not received greater attention. It is very appropriate that this book has been placed before the profession by Dr. Keen, as it was he who, in the fifth Toner lecture, in 1876, first grouped these affections together. The present work is the first attempt since that time to systematically consider the various surgical diseases that occur during or subsequent to an attack of typhoid fever. It is based on a study of tables of 1700 cases, compiled by the author and by Dr. Thompson S. Westcott. A chapter on the ocular complications of typhoid fever, by Dr. George E. de Schweinitz, has been included, and Dr. Keen's Toner lecture of 1876 is added as an appendix.

The progress of medicine is well illustrated by comparing the Toner lecture with the present volume. The typhoid bacillus, discovered by Eberth in 1880, was unknown, of course, when the former was written. The surgical treatment of perforation of a typhoid ulcer did not exist at this time. Infection of the gall-bladder by the bacillus typhosus, now a very important chapter, was not mentioned then. The Toner lecture consisted of a discussion on (1) Diseases of the Joints, (2) Diseases of the Bones, (3) Diseases of the Larynx, (4) Gangrene, (5) Hematomata, and (6) Parotitis. To these are now added a

chapter on the pathology of the surgical affections of typhoid fever, and twelve chapters on the surgical complications not included in the above.

The important *rôle* which the complications and sequels of typhoid fever play in the mortality of this disease is emphasized by Hölscher, who has shown that in 2000 fatal cases but 24 per cent. died of the typhoid infection *per se*, while 76 per cent. succumbed to the various medical and surgical complications and sequels.

In exhaustive research and systematic presentation this book seems to leave nothing to be desired. It is a valuable addition to surgical literature.

A Compendium of Insanity. By John B. Chapin, M.D., LL.D., Physician in chief to the Pennsylvania Hospital for the Insane, etc. Illustrated. Philadelphia: W. B. Saunders, 1898.

Those who are acquainted with the scientific attainments of Dr. Chapin and the clearness of his literary style will not be surprised at the excellence of this little work. It contains in clear, untechnical language all that is necessary for the physician to know, and it may be said all of which he should know concerning the recognition of the various forms of insanity and of their treatment. The latter is most satisfactory, directions are given how to meet all possible contingencies that may arise, and what are not often mentioned in more pretentious works, although most important, are the directions given as to when it is advisable to treat patients at their homes and when a hospital is preferable. There is also a most instructive chapter upon the methods to be pursued in determining the existence of insanity and of feigning. Several excellent illustrations reproduced from photographs are found throughout the book. Members of the legal profession and laymen, interested in the subject, as well as physicians can read it with interest and profit.

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MEDICAL MAGAZINE

AUGUST, 1898.

ETHER PNEUMONIA.[1]

By J. M. Anders, M.D., LL.D.,

PHILADELPHIA,

Professor of Medicine and Clinical Medicine, Medico-Chirurgical College, etc.

An examination of the scanty literature upon this subject has afforded convincing proof that irreconcilable differences of professional opinion exist in regard to the frequency of pneumonia after etherization, and also concerning the source and mode of infection. The data bearing upon the clinical peculiarities manifested by ether pneumonia are truly meagre. In view of these facts, it seems to me that the subject may be most conveniently considered under four heads: (1) The frequency of occurrence of pneumonia (either broncho- or lobar) after ether narcosis; (2) its special causal influences; (3) its clinical peculiarities, partly noted by personal observation; and (4) prophylaxis.

(1) From my own collective investigations, and those of a few other observers, it is obvious that pneumonia after ether narcosis is, on the whole, a comparatively infrequent condition. The results of different investigators, however, are exceedingly variable, and these differences are probably connected intimately with the operation of certain common predisposing causes that relate to the previous condition of the patient,—*e.g.*, the duration of the operation, season, etc. It is also highly probable that the infectious agents may become domesticated, so to speak, in general and special hospitals; in such institutions pneumonia may manifest endemic behavior following operations, as well as other predisposing influences.

[1] Read, by invitation, before the Kentucky State Medical Society, May 9, 1898, and before the Surgical Section of the American Medical Association, June 9, 1898.

The subjoined table embraces the combined statistics of two former investigators and my own.

Name of Collector.	Number of Etherizations.	Cases of Lobar Pneumonia.
W. H. Prescott [1]	40,000	3
J. Fred. W. Silk [2]	5,000	"about" 13
The Author	12,842	30

My statistics have been collected from the records of several of the hospitals—general and private—of Philadelphia. The widely various results obtained in these institutions may be seen at a glance from an inspection of the following table:

Name of Institution.	Number of Etherizations.	Number of Cases of Pneumonia.
German Hospital (four years)	2,000	4
Medico-Chirurgical Hospital (five years) [3]	1,500	6
Private hospital (E. E. Montgomery)	225	1
Presbyterian Hospital (ten years)	3,415	2
Gynécéan Hospital (five years)	1,702	13
Private hospital (Joseph Price)	4,000	4
Total	12,842	30

The aggregate number of cases from all sources is 57,842, and the number of cases of pneumonia after surgical operation is forty-six, or a percentage of .07,—*i.e.*, $\frac{7}{100}$ of 1 per cent. Of the total number collected by myself,—12,842,—thirty developed pneumonia, giving a percentage of .23.

Through the kindness of Dr. Willson, resident physician at the Pennsylvania Hospital, I learn that 12,690 major operations have been performed in that institution during the last ten years; but he is unable to state anything with absolute certainty concerning the occurrence of pneumonia as a sequel without examining all the histories, and, as there is not time for this, the cases from this hospital must for the present be excluded.

While the percentage of cases in which pneumonia has followed etherization would appear to be small indeed, according to the statistics given above, yet when the figures pertaining to gynecologic cases alone are considered, the situation is altered, as may be seen from the subjoined tabulated statement.

Name of Institution.	Number of Etherizations.	Number of Cases of Pneumonia.
Gynécéan Hospital (five years)	1702	13
Private hospital (E. E. Montgomery [4])	225	1
Medico-Chirurgical Hospital (five years)	880 (total 1500 cases)	5
Private hospital (Joseph Price)	4000	4

This table gives the sum total of 6807 etherizations, with twenty-three cases of pneumonia, or .33 per cent., as against .23 per cent. for the entire number (12,842) of major operations. The causes of the higher percentage of cases after gynecologic operations are not quite clear, but will receive due consideration presently.

Dr. Silk [5] is of the opinion that the occurrence of pneumonia after surgical operations "appears to be a traditional survival of the pre-anesthetic and preantiseptic days;" and, on carefully reviewing the statements of W. H. Prescott, it may be safely inferred that they imply agreement with this view.

Conversely, Mr. Clement Lucas states that, in his experience, "pneumonia after surgical operations is of too frequent occurrence to be explicable either upon the hypothesis of prior infection, or on that of simple exposure to cold." [6]

My own statistic investigations, and more particularly my personal observations at the bedside, are strongly corroborative of the views held by Mr. Clement Lucas. I feel that it cannot be reasonably doubted that more accurate statistics than are available at present would place the figures in a more striking light, and carry absolute conviction. This assertion needs a word of explanation. Ether pneumonia is often a latent affection; an irregular, slight, or moderate pyrexia may be the only manifestation, excepting the physical signs, and hence it probably has frequently been overlooked.

(2) *Causal Influences.*—Manifest differences of opinion are found to exist relative to the sources of infection and the factors predisposing to ether pneumonia.

Mr. Clement Lucas proposes the query, "Whether the masks and face-pieces used in the administration of the anesthetic may not be a possible source of infection?" To show that these possess little, if any, causal influence, it may be mentioned that in the 1500 major operations (given above) that have been performed in the Medico-Chirurgical Hospital (by Professors W. Easterly Ashton and E. Laplace) during a period of five years, the ether was administered by means of an ordinary towel (previously sterilized), and in Price's 4000 cases it was similarly given.

Again, Sternberg [7] has quoted some interesting experiments which show that the micro-organisms of the disease could, most probably, not maintain an existence in the masks and face-pieces. Thus, the cholera bacillus, the typhoid bacillus, and the anthrax bacillus were killed almost immediately when placed in weak watery solutions of chloroform,—$\frac{1}{4}$ to $\frac{1}{2}$ per cent. Tubercle bacilli were destroyed by exposure to ether for ten minutes.

Silk refers to the well-known fact that absolute alcohol (a con-

stituent of the A.-C.-E. mixture) is rapidly and permanently fatal to nearly all micro-organisms. He also alludes to the effect of nitrous oxide, which, though it does not absolutely destroy the organisms experimented upon, yet materially interferes with their development and restrains their growth, and then pertinently continues: "It is not a little curious, too, that the least potent of the drugs referred to (*chloroform, ether, absolute alcohol, nitrous oxide*,—italics mine), both from the anesthetist's and from the bacteriologist's point of view,—viz., nitrous oxide,—is the one which is used more frequently than all the others put together, and under conditions which would be most likely to convey infection. Except when a foreign body has slipped into the trachea, it has never, to my knowledge, been recorded that the use of nitrous oxide has been followed by anything approaching pneumonia. On the other hand, chloroform, the most powerful of anesthetics and a very strong antiseptic, which is used without a mask, is the anesthetic most frequently employed in septic jaw and tongue cases, in which the mortality from pneumonia is exceptionally high."

According to many observers, an increased bronchial secretion is consequent upon inhalation of ether, due to the irritant action of the latter. It is further contended that, owing to prolonged recumbency in a supine position, and the inability of the patient after operations (particularly upon the abdomen) to cough and expectorate without exciting pain, the secretion that is now present in abnormal proportion accumulates and gradually descends to the bronchioles, producing irritation, ending in pneumonia.

Other observers, among them von Grossmann,[8] after warmly advocating ether in preference to chloroform, assumes that ether does not produce bronchitis and bronchopneumonia by stimulating the secretion of the tracheo-bronchial mucosa, but, on the other hand, he contends that by allowing the secretion and any foreign matter that may be present in the nose and throat to escape during etherization by keeping the head comparatively low, and favoring the discharge of the mucus, etc., by turning it from time to time, will prove effectually preventive both of the development of pneumonia and the accumulation of secretion in the tracheo-bronchial tree.

Conversely, he believes that if this precaution be not taken, the various micro-organisms commonly present in the naso-pharynx are drawn downward into the respiratory tract by aspiration during ether narcosis. In this manner we may account for the development of bronchitis and bronchopneumonia,—affections frequently induced by the inhalation of biologic, chemical, and mechanical irritants from the upper air-passages.

I believe that the latter inference is justified on rational grounds,

and it has been found from practical experience that patients who manifest the evidences of pre-existing rhinitis or other pathologic conditions of the nose, throat, or bronchi, run peculiar dangers, since ether produces a depurating effect upon the mucous surfaces when inhaled, and presumably by loosening any desiccated secretions or incrustations that may be present. These detached products, harboring, as they often do, various micro-organisms, are prone to be drawn downward over the course of the respiratory tract and excite the usual forms of inflammation in the bronchioles and adjacent air-cells. In this manner a previous chronic bronchitis and latent or active tuberculous focus in the lungs, will be followed by bronchopneumonia, greatly endangering the life of the patient. In my investigations, eight of the thirty cases gave a history of previous "cold" or "cough."

That pneumonia is a specific infectious disease, and that the micro-organisms (micrococcus lanceolatus, Friedländer's bacillus, etc.) causing it are widely disseminated, are incontrovertible facts. Hence, "the development of an attack depends rather upon secondary predisposing and exciting causes than upon the accidental introduction of the specific agent." (Sternberg.) Netter found the micrococcus lanceolatus present in 20 per cent. of the specimens of buccal secretion taken from well persons; and it is occasionally harbored in the nose, Eustachian tubes, and larynx of healthy individuals. Dr. Doyen, of Paris, believes that the secondary complications (pneumonia) that follow surgical procedures are attributable to an infection that occurs at the time of the operation.[9]

There are a number of well-recognized predisposing causes of lobar pneumonia, and to them is most probably to be ascribed, in part, at least, the occurrence of ether pneumonia. It is not clear, however, which of these possess a preponderating etiologic influence, but certain facts developed during the progress of the present investigations into the subject are highly suggestive, and worthy of being recorded.

Seitz, of Munich, found that of 5905 cases that he collected nearly 70 per cent. occurred in the winter and spring months; and of my thirty cases of ether pneumonia, twenty-five—or over 80 per cent.—appeared during the same seasons. It is to be pointed out that few major operations were performed in the summer months (July and August), owing to the absence of the operators from the city, but it is nevertheless significant that of the remaining five cases that did not occur during the usual pneumonic season—winter and spring—two occurred in November and one in July. The time of occurrence of the remaining two cases was not stated. The influence of *season* is therefore notable.

The effect of *sex* is doubtless slight; since, although of thirty cases only six males suffered from pneumonia, the fact is to be mentioned that there were easily three times as many females as males represented in the totality of cases (12,842).

That *age* probably exercises an unimportant influence may be seen from the data herewith given: Below 20 years, 2; between 20 and 40, 10; between 40 and 60, 9; over 60 years, 3. In four cases the age was unknown; in two others it was not referred to in the notes. To render these figures reliable, the number of admissions for the different periods of life should be represented.

"Catching cold" or exposure, as may obtain during protracted operations, may be followed by pneumonia, and is assigned as a favoring cause. In such cases the marked degree of surgical shock often becomes a causative factor.

Dr. Dudley Buxton[10] has shown, to his own satisfaction, at least, that disorders of the respiratory organs, including pneumonia, following etherization are in few instances due to that agent. On the other hand, "removal of the patient to a cold ward after he has been in a hot operating theatre and subjected to severe surgical shock, has been the true cause of the lung trouble."

The cooling effect upon the body of towels soaked with antiseptic solutions and applied to the chest walls, or of sprays, douches, etc., also predisposes to the disease. The importance of obviating a too great dissipation of heat from the surface of the patient's body has been emphasized by H. C. Wood and W. S. Carter,[11] who claim that the circulation re-establishes itself more slowly after etherization than after an equal degree of chloroform narcosis.

The well-known effect of traumatism, especially of the thorax, in predisposing to pneumonia, by lowering the degree of vital resistance, is a fact that might be advanced to explain the causative influence of operations *per se*, but the present group of cases included few operations upon the thorax. In this connection, the fact that the alcoholic is particularly prone to this disease, and, in a lesser degree, sufferers from certain chronic diseases (carcinoma, marked anemia) is to be recollected by the surgeon.

It is a well-established truth that one attack of pneumonia increases the susceptibility to subsequent seizures, but, so far as I could learn, none of the subjects in whom the cases herein reported occurred, had suffered from prior attacks. Again, no endemic influence, attributable to defects in local sanitary arrangements, were detectable in any of the institutions from which the cases were gathered.

Ranking high in point of etiologic importance, as in bronchopneumonia, is the preparing of the soil conditions for the lodgement

of the micro-organisms of lobar pneumonia by the foreign, irritative substances aspirated (inhaled) from the higher air-passages. The notable causative effect of previous acute or chronic affections of the tract, as before explained, is doubtless manifested, though not generally appreciated. Combined (specific) forms of pneumonia, and pure bronchopneumonia, may, under these circumstances, arise (*vide infra*).

The causes of the greater percentage of cases following operations upon the pelvic organs is a subject of paramount practical importance and lively interest. It is not improbable that the longer duration of these operations may constitute a causative element in bringing about ether pneumonia. With a view to answering this question reliably I have endeavored to ascertain the comparative duration of the operations in general surgery and gynecology as relating to the cases herein reported, and while the results do not afford positive proof (owing to the impossibility of obtaining definite knowledge upon this point with reference to many of the operations), the balance of testimony is in favor of the view that I have expressed above, for the majority of the patients in whom this secondary complication supervened had been anesthetized for long periods of time.

Again, the notes of the cases collected by me afford convincing evidence that the previous existence of morbid states of the nose and lungs, bronchitis inclusive, is of the greatest etiologic importance in the development of pneumonia after ether narcosis for pelvic operative work. The reason for this is to be found in the fact that irritants aspirated into the smaller bronchi from the affected parts, during operations upon the pelvic organs, cannot be gotten rid of after operation, since the patient is unable to cough and expectorate without exciting great abdominal pain.

(3) *The Clinical Peculiarities, with Reports of Cases.*—The clinical features bear a striking similarity to those of secondary pneumonia, as do also the morbid lesions, according to the distribution of the areas implicated, and as evidenced by the physical signs. It has been frequently observed that there is a tendency in secondary pneumonia to commingling with small areas of bronchopneumonia. Moreover, the lung tissue surrounding the hepatized areas is apt to be more extensively congested than in the primary form. Microscopically, the combined presence of the streptococcus and the micrococcus lanceolatus have been noted. From the latter fact, coupled with the well-established clinical similarity between secondary and ether pneumonia, as observed by myself, I do not doubt that a mixed infection often occurs in the latter form of the disease.

The first two cases reported below, in their clinical manifestations,

are so typical of the entire group that it has seemed desirable to detail their histories at considerable length, thus obviating the necessity of presenting more than a condensed report, embracing merely the more important diagnostic and unusual features, of the remainder of my own group of six cases.

Case I.—S. G., aged 49 years; is married; occupation, housewife; family and previous personal histories are wholly negative.

Present Illness.—The patient applied at the Medico-Chirurgical Hospital, February 1, 1897, complaining of certain pelvic symptoms. After an examination, Professor W. Easterly Ashton decided to operate, and removed the uterine appendages February 4, when, as was expected, a pyosalpinx was found to have existed.

After the operation the case progressed favorably for a period of four days, there having been no rise of temperature in the mean time. At the end of this time a slight, stitch-like pain suddenly appeared in the right infra-axillary region, moderate fever developed, and on the second day I was requested to see the patient. The temperature was now 102° F., the respirations 30, and the pulse 100 per minute.

The physical signs were those of partial consolidation of the lower lobe of the right lung. On auscultation I clearly detected fine crepitant râles at the end of inspiration. On the following day the physical signs indicated complete consolidation, coextensive with the lower lobe, and the crepitant râle was absent. These signs continued for two weeks without change, resolution having been delayed. Meanwhile the local and general symptoms continued, though in a milder degree than in typical lobar pneumonia.

The single local symptom that excited my attention and led me to make a physical exploration of the thorax was the pain in the infra-axillary region. There was a slight, infrequent cough, with scanty muco-purulent expectoration after the lapse of a few days. The dyspnea was scarcely noticeable, the respirations ranging no higher than from 20 to 36 per minute. Among general features, the temperature-chart was most significant. The rise was rapid at the start, and then the temperature remained only moderately elevated, without any tendency to defervescence, until the end of the second week, when it fell by a rather tardy crisis, consentaneously with the occurrence of resolution. The pulse early became frequent, compressible, and small, varying from 80 to 120 per minute.

The heart-sounds remained clear throughout, with the usual accentuation of the pulmonary second sound, though in a lesser degree than is met in sthenic forms of pneumonia. There was an absence of vomiting, and instead of constipation, as is the general rule, diarrhea was manifested from the beginning. The stools numbered from three

to four daily, and contained considerable bile, hard scybalous masses, and undigested particles of food.

The intellect remained clear, though the manner of speech seemed to indicate sluggishness of mind. The convalescence was somewhat slow, though uninterrupted, and the healing of the abdominal wound was not appreciably delayed, according to Professor Ashton.

Case II.—Mrs. L. A. R., aged 31 years, housewife, was admitted to the Medico-Chirurgical Hospital January 24, 1898.

The patient, though married six years, was childless, and had no miscarriages. Menstruation had been normal until the time of her marriage, but since then somewhat painful. During the six months preceding date of admission patient complained of a paroxysmal abdominal pain that would shoot down either leg. This pain grew progressively worse, and at last backache was an associated and troublesome symptom. Headache was also present, the sleep disturbed, and the appetite was variable.

On admission the patient was examined by Professor Ashton, and ovariotomy was performed by him January 27. The ovaries were found to be cystic.

The usual careful "preparatory" and "post-operative" treatment was rigorously carried out. The day following the section the temperature rose to 99.4° F., and ranged between that level and the normal for the next four days. Meanwhile cough was absent. Four days after operation (January 31) the temperature rose from 99° to 102°, and at the same time there developed a stitch-like pain in the left infra-axillary area.

February 1.—Dr. Ashton requested me to see the case. The presence of fever and thoracic pain were noted, and a physical examination of the thorax revealed partial consolidation of the lower lobe of the left lung.

February 2.—Solidification of the affected lobe now found to be complete, and a few moist râles were audible over the large bronchi anteriorly; the signs of bronchitis, however, did not preponderate over those of consolidation. The patient was considerably annoyed by tenacious mucus, which continually accumulated in the throat, and seemed at times to be regurgitated or very frequently "hawked up," from the larynx and trachea. Cough was almost never present, being repressed, and when it occurred it was unattended with expectoration.

Dyspnea was not noticeable, and after the third day the pain gradually subsided. The respirations did not exceed 40 per minute, while the pulse ranged from 100 to 132, hence there was entire absence of the usual disturbance of the pulse-respiration ratio, a distinctive feature of primary lobar pneumonia.

The physical signs, the temperature range, and the subjective symptoms, detailed above, continued without apparent change until the twelfth day of the illness, when the temperature (beginning at an early hour) dropped by crisis from 102° F. to the normal.

The patient now passed into convalescence, the physical signs disappeared, and the pasty mucus ceased to be expectorated. The abdominal wound healed kindly, and the patient made an excellent recovery, though the sojourn in the hospital may have been slightly prolonged on account of the complicating pneumonia.

The treatment consisted principally of liquid (predigested) nourishment, stimulation by strychnine and alcohol, and the local use of the ice-poultice.

Case III.—Maggie W., single; aged 19 years; nativity Ireland; occupation, child's nurse. She was admitted into the gynecologic wards of the Medico-Chirurgical Hospital October 30, 1897.

Puberty occurred at 15; but since then has menstruated only about half a dozen times. During the last menstruation, which occurred about one year ago, the discharge was chocolate-colored and thin.

Four months before the date of admission patient became aware of a mass in the left inguinal region; this was movable, and slowly and gradually becoming larger, was hard, almost fibrous, to the touch. At first it occasioned great pain, but of late this symptom had been absent. Diarrhea had been troublesome, with thin, watery stools; appetite poor, but patient slept well.

November 5.—Patient subjected to operation by Professor Ashton. Two days later (November 7) the temperature rose during the evening hours to 100.3° F. This was accompanied by pain in the left axillary region, and very slight dyspnea. A physical examination revealed consolidation of the lower lobe of the left lung.

The pulse mounted from 96 to 140 per minute, the respirations became somewhat quickened, and on making a physical exploration, the entire left lung was found to be solidified. The patient sank rapidly, and death occurred at 11 P.M. No autopsy was allowed. There were no signs of generalized bronchitis present, and no previous history of cardiac disease.

Case IV.—Mary O., aged 50 years, of Irish descent, housewife, was admitted into the Medico-Chirurgical Hospital, by Dr. William C. Hollopeter, December 14, 1897, suffering from fibroid tumor of the uterus. She was immediately placed upon section treatment, and on December 16 hysterectomy was performed by Dr. Ashton.

On the following day (the 17th) the temperature began to rise, and touched 102° F. by midnight; slight pain was also complained of,

affecting the left axillary region. On December 19 I was requested to see the patient, and found the entire lung consolidated, the pulse excessively rapid,—140 to 150 per minute,—but the respirations were only moderately increased in frequency.

The fever was of a continued type until a couple of days preceding a fatal termination, when it became irregular, and was moderate throughout the greater portion of the course, the temperature ranging from 100° to 102° F.; it mounted quickly to 104° immediately preceding the fatal issue. The pulse-rate reached 165 per minute, and the respirations rapidly increased in frequency to 60 per minute during the last day of the illness. There was no attempt at resolution at the time of death, and the physical signs referable to the heart were identical with those noted in primary lobar pneumonia preceding a fatal ending,—accentuation of the pulmonary artery second sound at first, followed by enfeeblement of the first sound, and with ensuing failure of the right ventricle, progressive decrease in the intensity of the pulmonary artery second sound. An autopsy was not procurable.

Case V.—Mrs. C. W., aged 40 years, was admitted to the gynecologic wards of the Medico-Chirurgical Hospital March 17, 1898, in charge of Professor W. Easterly Ashton.

The following notes were, on admission, made by the resident, Dr. Barnhart: "Patient has been married eleven years; one child; no miscarriages; puberty at 12 years; menstruation normal as to time and character. Leucorrhea has been markedly manifest for several years.

"*Present Illness.*—During the past two years, general health has become more and more impaired. Backache and pain in right ovarian region, attended with a 'bearing-down sensation and burning in the rectum,' form prominent symptoms. The appetite has been and is fairly good, the bowels are regular, but the sleep is disturbed." The patient had a slight cough on admission, for which a mixture was prescribed; four days later, cough having been in great measure relieved, section treatment was instituted, and on the next day (the 22d) Professor Ashton operated, removing both ovaries and tubes.

March 24.—Pain, catching in character, was experienced in the left infra-axillary region, and the temperature began to rise. At the request of Dr. Ashton, I saw the patient on March 25. Pain was still present, though not severe, temperature not above 100° F., pulse 108, breathing somewhat accelerated, but no appreciable dyspnea present.

Physical examination showed the presence of faint friction sound over the base, laterally, of the left lung, feeble broncho-vesicular breathing, and a few moist râles on auscultation; there was some impairment of the percussion resonance over the same area. Addi-

tionally, the signs of generalized bronchitis were present and seemed to preponderate. During the course of the complication there was slight cough and small amounts of blood-stained muco-purulent expectoration.

Temperature at no time was above 101° F., and generally lower than this, and the fever-curve was quite irregular. The physical signs mentioned above persisted for a period of ten days without change, except that the friction-sound had meanwhile disappeared, then they subsided in a rather gradual manner, and convalescence ensued.

Case VI.—The patient, Jesse V., aged 28 years; occupation, blacksmith, was admitted to the surgical wards of the Medico-Chirurgical Hospital May 9, 1896, suffering from a tumor of the patella.

Family History.—Parents living and enjoying good health; also has one brother and three sisters living.

Previous History.—During childhood had the usual affections common to that period of life.

Present Trouble.—Eight months previous to date of admission, first noticed a swelling on the knee, which gradually grew larger until date of admission. The tumor has always been painless. It was operated upon, by Professor Laplace, May 11, and the case progressed favorably afterwards until the afternoon of May 20, when a severe chill occurred, the temperature shooting up immediately to 104.4° F.; next day the diagnosis of pneumonia was made. The case pursued the usual course, though the fever-curve showed more decided remissions than is usual in lobar pneumonia, and the evening exacerbations several times reached 104.8°. On May 27 a crisis occurred, and on the following day the physical signs indicated the approach of resolution. After the crisis the patient was speedily restored to his customary health, and he was discharged, June 7, cured.

The notes of the four cases following have been furnished from the records of the German Hospital, Philadelphia, through the kindness and courtesy of Dr. John B. Deaver.

Case VII.—C. K., aged 60 years, admitted April 2, 1894, suffering from hernia. Patient was operated upon April 3; temperature 97.6° F. On April 5 the temperature rose abruptly to 103.2°. While here there was a break in the temperature-chart, I find that on the 28th it was 101.6°, and descended abruptly to 98°,—by crisis. The diagnosis of pneumonia was readily made from the physical signs, coupled with the characteristic temperature-curve. The principal portion of the history, however, was lost.

Case VIII.—A. L., aged 32 years, single; occupation, railroad hand, was admitted February 3, 1897.

Pirogoff's operation performed during August, 1896, for a rail-

road crush. The flap sloughed, and perfect union had never been obtained. Reamputation advised. A subacute bronchitis noted, which improved under ammonium carbonate mixture. Operation February 6, 1897. Wound closed with interrupted silkworm gut. Ends left open. No drainage-tube. Directly after operation complained of difficult breathing, owing to large amount of mucus secreted.

February 10, 1897.—Wound dressed; no pus. Lungs: Dulness over left base, less marked over right. Mucous and wheezing râles; some sputum, which was thick, tenacious mucus, but not blood stained.

February 14, 1897.—Same condition noted.

February 20, 1897.—No tendency to resolution in spite of active treatment. Pulse and respiration very rapid. Profuse sweating.

February 23, 1897.—Died, respiratory and heart failure being apparently coincident.

The temperature-curve showed a steady rise immediately after the operation (February 6); from 98° to 101.8° F. on the 7th. Highest temperature 104.2°. Diagnosis correctly given as bronchopneumonia.

Case IX.—P. L., single, aged 32 years, native of Greece, occupation, candy-maker, was admitted December 20, 1897. Diagnosis, floating kidney (operation) and tuberculosis of lungs. Result, recovery.

Family History.—Negative.

Previous History.—He has been in this country four and a half years; was in better health in Greece than he is now; has lost thirty-five pounds in the last year. Drinks, moderately, of whiskey, wine, and beer; smokes cigarettes. Denies venereal disease. Nephrorrhaphy was performed at the Hahnemann Hospital October 16, 1897.

Present Condition.—For a year has noticed a movable tumor in the right loin space during recumbency. When he assumes the erect posture he can feel it move forward and downward into the right iliac fossa. He can grasp it there and deposit it back into the right loin space. The movable tumor is reniform in shape. Complains of palpitation of the heart, but physical signs referable to this organ are negative.

Lungs.—Has some bronchitis; râles all over chest, and fine mucous râles. No areas of dulness or impaired resonance. Muco-purulent expectoration. January 6, 1898, still coughs a little; expectoration growing less, and no tubercle bacilli found, but red blood-cells, epithelium, leucocytosis, streptococci and diplococci. Probably a slight impairment of pulmonary resonance at left apex. Fine mucous râles at left apex, but also heard at other areas, though not so numerous. January 8, operation; January 10, sputum examined and

tubercle bacilli found. Patient has also developed irregular temperature, chilliness followed by feverishness; cough with free expectoration of mucus. January 16: Gauze, which had been put under free borders of kidney to keep it in place, removed. Repacked and afterwards dressed every third or fourth day. The temperature had been normal before the operation; it rose abruptly to 102.4° F. on January 9, or the day after the operation, and then descended gradually to the normal. February 18: Patient completely recovered.

Case X.—G. S., aged 21 years, single; residence, Cumberland, Md.; occupation, travelling salesman; native of the United States; admitted February 2, 1898. Diagnosis, chronic appendicitis (operation); bronchopneumonia as a sequel; recovery.

Family History.—Negative.

Previous History.—Measles, scarlet fever, diphtheria, during childhood. Pleurisy, chronic nasal catarrh, bronchitis (chronic) since the age of ten. Weak during his whole life. Drinks moderately; never uses tobacco; denies venereal disease. Some physicians had said he had tuberculosis. Many attacks of appendicitis. Four years ago constipation set in, and since that time the attacks of pain in the right iliac fossa have grown worse, though has never had vomiting. On May 1, 1897, had a severe attack of abdominal pain; in June had another. Has been under the care of Dr. J. M. Da Costa since July 1. On July 25 had another attack. None of the attacks necessitated his going to bed for more than a day. Was treated for chronic bronchitis by Dr. Da Costa, who also made the diagnosis of catarrhal appendicitis, and advised operation. The patient was referred to Dr. John B. Deaver. Physical examination of the thorax revealed numerous râles in the left base posteriorly after coughing. Heart negative.

Operation, February 3, 1898, for appendicitis, and chronic disease of that organ was found to exist. The appendix was excised out of the cecum, stitched with silk. February 8: sudden rise of temperature; respiration very rapid,—40 to 60 per minute. No dull areas; many râles (moist) present, and profuse expectoration of muco-purulent matter. Pulse quite rapid.

February 9, 1898.—Condition somewhat improved. Numerous fine, moist râles anteriorly and posteriorly. No areas of dulness; expectoration still profuse. February 10: Condition much improved. February 13: Stitches removed; union excellent. February 16: Patient doing quite well, though cough still continues.

I note that before operation the temperature was normal; after laparotomy it rose (on the 8th) to 102° F., continued to be irregularly elevated, and declined gradually at the last.

In the two cases that occurred at the Presbyterian Hospital,

Philadelphia, full notes were not taken. As a matter of fact, Dr. Albert E. Blackburn, who carefully searched the records for me, could find nothing more than the temperature charts, and a few additional data.

Case XI.—T. A., aged 56 years; nativity Ireland; occupation, brick-layer, was admitted to the Presbyterian Hospital July 14, 1897. The operation performed was excision of the shoulder-joint for fracture of the humerus with impaction. Operation on July 17. The symptoms of pneumonia did not appear until August 3, when the temperature rose to 101° F., and on the next touched 104°; it then slowly and gradually defervesced, and on the 15th the morning temperature touched the normal level, while the evening exacerbations persisted until the 25th, when both the evening and morning temperature became normal. This was probably a case of bronchopneumonia.

Case XII.—W. L., aged 5 months, born in Philadelphia, was admitted into the Presbyterian Hospital March 29, 1898. Diagnosis, double harelip and cleft palate. On admission temperature was normal. Two days later (March 31) operation was performed at 2.30 P.M., and during the same evening the temperature mounted to 104° F. On the following morning (4 A.M.) it was 103°, at noon 105°, at which level it remained until 8 P.M., when it leaped to 106.8°, death occurring during the hyperpyrexial period, or about midnight. The revised diagnosis on the chart is pneumonia following ether narcosis.

From the records of the Gynécéan Hospital, Dr. J. M. Baldy kindly furnished the data pertaining to the patients treated for pneumonia after being etherized. There was a total of fifteen cases, concerning two of which, however, there is no clinical record, further than the statement that pneumonia occurred; and in one of these with fatal result. In two others the symptoms and physical signs rendered the diagnosis of active pulmonary congestion of both lungs highly probable, and in both a fatal termination ensued within forty-eight hours. This would reduce the number of cases of pneumonia to thirteen (*vide* table) for the Gynécéan Hospital, with brief notes upon eleven, which will be given below.

Case XIII.—E. M., aged 31 years, married; occupation, housework; childless, was admitted February 18, 1893. The diagnosis, uterine fibroid.

February 20, 1893.—Etherized and hysterectomy performed by Dr. Baldy. Three days later the temperature mounted to 101° F., and the signs of double lobar pneumonia promptly developed. During the next three days the temperature continued to rise, and immediately preceding death touched 106° (hyperpyrexia). The respirations ranged from 30 to 80 per minute, and the pulse from 120 to 180 (?).

During the greater portion of this case, however, there was no marked disproportion of the pulse-respiration ratio, as in primary lobar pneumonia, and on only one occasion did the respirations number 80. Duration was four days.

Case XIV.—S. B., aged 26 years, married, two children, was admitted to the Gynécéan Hospital December 4, 1894. Diagnosis, acute pyosalpinx (puerperal).

December 6, 1894, hysterectomy was performed; the patient did well until thirty-six hours after the operation, when a sort of bronchitis developed, with large mucous and stridulous râles over larger bronchi; this condition gradually passed downward to the smaller bronchi, and on the evening of December 9 signs of consolidation at the base of the right lung were well marked. The respirations numbered 36 to 44; pulse of fair tension and full, 126 to 130; and the temperature 103° to 104.4° F.; some sweating. Later the respirations became increased,—46 to 54,—and signs of consolidation at the right apex supervened.

On December 17, the temperature, which had maintained the same range as stated above, began to fall, while the respirations increased (50 to 60), and the pulse was variable (126 to 140).

On the 26th the temperature reached the normal level, but the pulse was rapid and weak (160 to 168), and the respirations more rapid (56 to 66); the temperature then began to rise again, and signs of consolidation of the left lung appeared. The pulse now became very variable, being slow and full when the patient was asleep (71 to 80), and on waking would run up to 100 to 150. The respirations increased to 72, then 84, and gradually cyanosis with marked death-rattle appeared; just previous to death the temperature was 104° F., pulse (?), respirations 70. Death occurred twenty days after operation.

Post-Mortem.—Abdominal condition perfect; no adhesions being found. Lungs: The upper and lower lobes of right lung consolidated throughout. The left upper lobe was in the same condition, and the left lower lobe deeply congested. Kidneys large but otherwise normal, and no signs of tuberculosis of any organs or glands.

Case XV.—A. M., aged 31 years, widow, without issue, entered the house February 23, 1896. The diagnosis, fibroid tumor of the uterus.

The operation was postponed one week, owing to a cough from which the patient was suffering (the morbid condition on which the cough was dependent not stated). March 3, 1896: Hysterectomy was performed, and on the evening of the same day the patient manifested some cough; a turpentine stupe was applied to chest. March 4: Tincture of digitalis, ten minims, every four hours. Patient passing

flatus. March 5: Temperature and pulse becoming higher; ordered tincture of digitalis, ten minims, every four hours, patient passing a great deal of flatus, though the bowels moved. March 6: Fever constantly rising,—condition serious. March 7: Temperature 103.2° F., pulse 144. No notes concerning the physical signs except the fact that pneumonia or pulmonary embolism (?) was diagnosticated. The patient died at 8 A.M. in extreme hyperpyrexia.

CASE XVI.—E. S., aged 30 years; occupation, housework; married, was admitted January 14, 1897. Diagnosis, prolapse and retroversion of the uterus.

January 15.—Operation, celiotomy. January 16: Great tympany developed, with rapid, weak pulse and high fever (102° to 105° F.); respiration rapid and shallow. The bowels were moved by an enema, salts and calomel, which caused the distention to subside, but pulse and respiration continued rapid, and fever high. January 17: Signs of consolidation of both bases. No cough. Abdominal symptoms had disappeared; the pulse, however, grew weaker, and the temperature higher (105° to 106°). The patient died at 1 A.M., cause, double pneumonia.

CASE XVII.—M. E., unknown age, was admitted April 9, 1897. April 10: Was operated upon for some pelvic trouble, but the character of the latter not stated. For two days the temperature ranged from 99° to 100° F., then pain in the left side developed, and the temperature rose to 101.6°. April 13: The temperature touched 102.4°, respirations 40, pulse 144. A rusty expectoration was now noted, and the diagnosis of lobar pneumonia was made from the symptoms and signs. April 14: Temperature rose to 103°, respirations only 26, while the pulse rose to 156, and death occurred at 12 midnight.

CASE XVIII.—S. M., aged 50 years, married; occupation, housework, was admitted in the early part of January, 1898. Diagnosis, uterine prolapse.

January 13, 1898.—Operation, hysterectomy. On the following day some degree of congestion of the bronchial tubes was manifested. January 15: Temperature rose to 103.6° F., pulse 90 (forty-eight hours after operation). January 16: Evening temperature 102°; pulse 108. Physical signs not recorded. January 20: Temperature and pulse had returned to normal, and remained so until recovery was complete. The diagnosis of pneumonia after ether narcosis was made, but the variety is not stated.

CASE XIX.—R. M., date of admission, April 27, 1896. Diagnosis, fibroid tumor. Hysterectomy performed April 29. The temperature for two days kept near 100° F., and then rose until it reached 102⅖°

by May 2. At this time there was also some expectoration, and the physical signs of bronchopneumonia appeared. May 3: The temperature began to decline in a very slow and gradual manner, with a proportionate decrease in the rate of the pulse and of the respirations, and on May 22 patient returned home, completely convalescent.

Case XX.—C. W., aged 40 years, married; occupation, housework; admitted May 1, 1894. Diagnosis, salpingitis and laceration of the perineum. May 1: Celiotomy was performed,—ventral fixation and repair of cervix and perineum. This patient had cough at the time of the operation. On the day following (May 2) some congestion of the lungs, accompanied with cough, was noted. The temperature ran to 101° F., pulse 90 to 100, for fourteen days, then both dropped to the normal, and remained at that point. The case is classed as one of bronchopneumonia, though the data are too meagre to warrant a positive inference, I think.

Case XXI.—Mrs. M., admitted April 22, 1897. Diagnosis, retroversion and prolapse of uterus; pneumonia after etherization. May 1, 1897: Operation performed. May 2: Temperature 100⅖° F., pulse 86, respirations 24; cough, pain under left shoulder-blade; bloody sputa. May 3, 4, 5, 6, 7, and 8 the temperature ranged from 101° to 103⅘°, the respirations from 38 to 50, and the pulse from 90 to 136; the expectoration was rusty-colored. May 9: Patient delirious. A pseudo-crisis occurred early in the day, the evening temperature, however, being the same as previously (102⅖°). Beginning with May 10 the temperature gradually defervesced, and reached the normal level on the 17th. The notes did not give a detailed account of the physical signs, but said that lobar pneumonia developed. It should be stated that the operation was postponed one week because the patient had a "cold."

Case XXII.—Mrs. C., aged 40 years, married; occupation, housework, was admitted to the house December 28, 1897. The diagnosis was uterine fibroid, for which celiotomy was performed December 29. The convalescence proceeded normally until the twelfth day subsequent to the operation, when the patient complained of pain in the right side. Next day the temperature and pulse ran up considerably, and continued high for some time. The diagnosis of pneumonia was made from the signs and symptoms. The patient completely recovered.

Case XXIII.—L. D., aged 25 years, married; occupation, servant; has had one abortion. Gave a history of "always having a cold." Diagnosis, bilateral pyosalpinx. Date of admission not stated. November 21, 1895, oöphorectomy was performed. This patient developed pneumonia (double) about three or four days after the opera-

tion; had a characteristic attack, involving both lungs. Temperature climbed to 104° F.; pulse 130; both remained high for about two weeks, then patient entered upon rapid convalescence, and made a good recovery.

As before indicated (*vide* table), Dr. Joseph Price, out of 4000 celiotomies, met with four cases of pneumonia following ether narcosis. Two occurred in persons above the 60th year, and the other two under the latter age and over 50. The diagnoses were, three cystoma (large), one fibroma of uterus; all were prolonged operations, on account of complications. The pneumonia came on from three to six days after etherization, and the fatal cases developed double pneumonia, and died in hyperpyrexia.

Other forms of bronchial and lung conditions, as congestion, bronchitis, etc., were met, and ascribed by Dr. Price to sepsis. Price, Montgomery, and Deaver state that ether greatly improves cases of pre-existing bronchial catarrh, in cases in which the immediate unfavorable effects are survived.

The data furnished by Professor E. E. Montgomery from his private hospital contained notes, which are here appended, of a single case of pneumonia after etherization (*vide* table).

Case XXVIII.—A. L., aged 27 years, married, but childless, was admitted April 25, 1895. There was a history of previous pelvic trouble, lasting three weeks; she also manifested slight bronchial irritation at the time of entrance into the hospital. The diagnosis of pyosalpinx was easily made, and oöphorectomy was performed for this condition. During anesthesia cough and difficulty in respiration were developed, and demanded a hypodermic injection of atropine. The operation was somewhat protracted, on account of complications and an attempt to open (with a view to saving) one of the tubes.

On the second day after celiotomy fever, pain, and the typical physical signs of lobar pneumonia, affecting the lower lobe of the left lung, developed. There was slight cough, and characteristic, rusty sputum; the maximum temperature was 104° F. The course of the pneumonia was run within twelve days, and at the end of the second week the patient was rapidly convalescing, returning home after a sojourn of one month in the hospital.

Dr. Montgomery has also furnished the notes of the following case, which occurred in the Jefferson College Hospital, under his care. It is the only instance of ether pneumonia that has occurred in the gynecological department of this hospital, and since the aggregate number of cases operated upon has not, as yet, been determined, I have not included it in the foregoing statistics.

Case XXIX.—L. M., aged 33 years, white, German, married, was admitted April 21, 1898. Diagnosis, ventral hernia.

The operation was performed April 22, under ether, and lasted thirty-five minutes. After the operation, patient continued to do well until the 25th, when she became restless during the night. April 26: About 9 A.M. had a slight chill, and felt weak; face, lips, and finger-nails became cyanotic. Pulse and respirations became slightly accelerated, and patient complained of sharp pains in the sternal region. The symptoms mentioned abated after the lapse of one hour, except the feeling of weakness, and on the following day (the 27th) patient felt well. April 28: Face became flushed, respirations short, quick, and labored; pulse good, though slightly accelerated; lips and finger-nails quite cyanotic. Sharp pains now developed in left chest, in mid-axillary line, about seventh and eighth ribs; slight cough, with blood-stained expectoration.

Physical Examination.—Auscultation revealed friction-sounds and crepitant râles over left lower lobe; the percussion note was hyper-resonant. April 30: The crepitant râles, friction-sounds, and pains had about subsided, while bronchial breathing was present. May 10: Resolution has set in, and thus far has been uninterrupted.

The diagnosis of pneumonia was made by both Drs. H. A. Hare and Thomas G. Ashton. There was no sign of asepsis in the wound, which healed in the usual period.

Dr. George W. Pfromm has kindly given me the notes of a case which he saw while a student in Berlin.

Case XXX.—M. H., aged 29 years, primipara, was admitted into the Charité Hospital in March, 1896. Labor occurred at full term, and was complicated, owing to the existence of a double uterus; high application of the forceps and anesthesia were found necessary. Eight or ten days after delivery the patient was admitted into the medical wards, manifesting the following symptoms: Dyspnea, cough, pain in chest, temperature 103° F. On physical examination the signs of bronchopneumonia were elicited. The patient made a good recovery.

Although the series of thirty cases herewith reported were, for the most part, not exhaustively studied, there is little room for doubt as to the correctness of the diagnosis of pneumonia—either broncho- or lobar pneumonia—in view of the histories, temperature-curves, and the typical physical signs.

Furthermore, the notes from some of the institutions included data pointing strongly to the diagnosis of bronchitis, bronchopneumonia, edema, and the like; but as they lacked clear and convincing clinical proof were excluded. As I have said (*supra*), a more careful observation of the thoracic conditions in those post-operative cases

in which ether has been used as the anesthetic, would disclose a greater proportion of instances in which deleterious, and even dangerous, disorders of the respiratory organs would be found to exist. Some of the cases that I have observed were decidedly latent in character as to the subjective symptoms.

The invasion was not marked by rigor in my cases, save in a single instance. Chest pain, of slight intensity, was present in all the cases under my care, while dyspnea was scarcely noticeable, as a rule. Neither was there the usual disturbance of the pulse-respiration ratio in the cases that occurred in the Medico-Chirurgical Hospital. In some of the instances that occurred in the other institutions, however, this obtained to a moderate extent. Cough was either slight, or totally absent, in my series of cases.

In Case I "a slight, infrequent cough, with scanty muco-purulent expectoration," occurred; in Case II "the patient was considerably annoyed by tenacious mucus, that was 'hawked up;' cough being practically absent," and in Case V the patient had "a slight cough on admission," and the pneumonia was accompanied by a "slight cough and small amounts of blood-stained, muco-purulent expectoration." In the cases that occurred in the other institutions, there were three in which rusty sputum was noted, and still others in which there was expectoration, either muco-purulent or hemorrhagic.

The *pulse*, particularly in the grave cases, was rapid, and generally small and compressible, and the same was true of the respirations. The temperature range in the lobar form of the affection was lower than in typical lobar pneumonia, and more irregular, and the defervescence was by rapid lysis rather than by crisis, though true crises also occurred. In some cases the fever-curve pursued a remarkably low range (*e.g.*, Case II of my own series). According to the notes, seven of the thirteen fatal cases developed hyperpyrexia in the last hours of life. The special clinical manifestations mentioned in this connection corroborate the statement made at the outset under (3), to wit, that ether pneumonia presents a grouping of symptoms similar to that of secondary pneumonia, for example, as after, or late in the course of, acute infectious diseases.

The *diagnosis* rests principally upon the typical physical signs, which are usually unequivocal, but these may not be examined, owing to the extreme latency of the condition and the presence of an, as yet, unhealed wound, so that the symptoms may be regarded as being septic in nature. I would, therefore, emphasize the important fact that the sudden accession of fever, particularly if it occur coincidently with thoracic pain, however slight, following an operation, renders a physical examination of the thorax imperative.

As stated, thirteen of the thirty cases of pneumonia proved fatal, a percentage of 43.3. Surely, if ether be responsible for these fatalities, even though indirectly, there is great likelihood that, when other ill consequences are considered, it is but little less dangerous to life than its rival, chloroform.

(4) *The Use of Agencies to prevent Pneumonia after Ether Anesthesia.*—Any predisposing conditions that may be present must be well considered and removed, or mitigated as far as possible, before a major operation should be undertaken. For example, a pre-existing bronchitis should be first cured, or relieved or palliated, by suitable measures; and the local treatment, with a view to insuring cleanliness and disinfection of the respiratory tract, should not be neglected. When approved treatment does not avail, the risk to life from the possible development of pneumonia should be carefully considered. If a previous rhinitis have existed, its removal or amelioration must also be effected, when possible. At all events, a thorough cleansing of the mucosa of the naso-pharynx is imperative, so as to prevent the aspiration of irritating morbid products (desiccated secretion, incrustations), with their lurking micro-organisms, from the higher to the lower respiratory passages, and the setting up of pneumonia, since ether promotes separation of these foreign substances. An appropriate toilet of the nasal passages as a routine practice is to be advised and encouraged. To this should be added a mouth-wash of some efficient antiseptic solution, and a similar spray for the throat. I would also urge the adoption of the suggestion of von Grossmann,—namely, to turn the head of the patient to either side, from time to time, during anesthesia, so as to allow of the escape of the loosened secretion from the mouth and nostrils, and it often becomes necessary to effect its removal from the oral cavity by means of a towel.

It is essential in operations that are ordinarily protracted, especially if attended with profound surgical shock, for the certain prevention of secondary disorders of the lungs, to minimize the duration of the operations, consistent with their proper and thorough execution. In other words, the surgeon should cultivate facility and rapidity of operation, without sacrificing the well-being of his patients. During operations, particularly prolonged ones, undue cooling of the skin-surface of the body should be effectively prevented. Again, from the facts adduced under " Causative Influences," the removal of the patient after operation from an intensely heated operating theatre to the much cooler ward or room probably constitutes an element of danger. It is important, then, that the bodily temperature be well maintained, and the restoration of the circulation after ether narcosis aided by appropriate artificial means. This dictum is corroborated by the fact pre-

viously shown, to wit, that the preponderating proportion of cases reported in this paper occurred during the season of cold and changeable weathers.

Closely connected with the question of the time-limit and the degree of shock, as relating to surgical procedures, are those of the amount of ether consumed by the patient and the mode of its administration. Although this aspect of the subject scarcely falls within the scope of this article, here may, nevertheless, be mentioned and emphasized an important truth, viz., that no more ether than is absolutely requisite should be given, and that most judicious care should be exercised in its administration, since in this manner may sequential pulmonary disorders be obviated.

REFERENCES.

[1] "Does Etherization ever cause Acute Lobar Pneumonia?" Boston Medical and Surgical Journal, March 28, 1895.

[2] "Pneumonia after Surgical Operations: an Anesthetist's Point of View" (a paper read before the Society of Anesthetists on March 18, 1897), Lancet, March 20, 1897.

[3] My thanks are due Dr. A. Godfrey, the resident physician, for kind aid in examining the records of this hospital.

[4] It is fair to state that Professor Montgomery used ether alone, in a minority of his major operations.

[5] Loc. cit.

[6] "A Question for Anesthetists," Lancet, February 20, 1897.

[7] Manual of Bacteriology, pp. 167, 169, 189, 194.

[8] Deutsche Medicinische Wochenschrift, July, 1895.

[9] Paris Correspondent, W. S. Caldwell, Journal American Medical Association, April 23, 1898.

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Hemisystole.

Cavazzani (*Morgagni*, Part I, No. 1, 1898) reports four clinical observations of hemisystole due to distinct and independent activity of both sides of the heart. The cases are reported to show that the functional activity of both ventricles may be so dissociated that every variety of rhythm and of systole may occur independently in each half of the heart. The presence in the arteries of a pulsus bigeminus is not indicative of the fact that the right heart has a pulsus bigeminus, nor *vice versa*. On the other hand, a true hemisystole is a rare occurrence, as demonstrated both by clinical observation and by vivisection. Of more common occurrence are those cases of simple disharmony in action, or of varying degrees of energy in the two ventricles. All these forms of dissociation in the activity of the heart are usually of similar import, as they depend upon the functional activity of the nervous system.

THE TREATMENT OF DEEP URETHRAL STRICTURES BY INTERNAL URETHROTOMY.

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The prevailing sentiment of the profession is against the employment of internal urethrotomy for deep strictures of the urethra,—that is, those involving the bulbous and membranous portions. The teachings of Otis and Harrison, emphasized by White, are sufficient to account for it, particularly when we find the latter disseminating his views in three systems of surgery, besides an elaborate text-book.

F. N. Otis ("Some Important Points in the Treatment of Deep Urethral Stricture," *New York Medical Journal*, February 19, 1887) says, "I do not consider the amount of cutting sometimes necessary to completely divide the stricture by dilating urethrotomy justifiable in the deep urethra, or beyond a point where any resultant hemorrhage can be readily controlled by external pressure."

Reginal Harrison (*British Medical Journal*, July 18, 1885) said that "internal urethrotomy is extremely liable to be followed by a form of fever which is exceptional, unexplainable, and occasionally fatal."

J. William White and Edward Martin ("Genito-Urinary and Venereal Diseases," p. 232) speak as follows: "Internal urethrotomy is practised in cases of tight bulbo-membranous strictures complicated by retention only when the patient refuses to have the external operation performed. In the best hands it is attended with a distinctly larger mortality than any of the other methods mentioned, and there is no evidence that it is followed by any larger percentage of cures."

We also find William T. Belfield ("Surgery by American Authors," Vol. ii, p. 476) stating that "in the deep urethra internal urethrotomy should never be made, for extravasation of urine is very probable and very serious, the firm fascia of the triangular ligament confining the septic material." Also Thomas R. Neilson, in the supplementary volume of Ashhurst's "Encyclopædia of Surgery" (Vol. vii, p. 955), says that internal urethrotomy "should be limited to strictures occurring not deeper than the fore part of the bulb of the urethra."

These quotations are sufficient to show the prevailing opinions

on the subject. The German surgeons have never been strong advocates of internal urethrotomy, which has found its strongest supporters in France, due to the able work of Civiale and Guyon.

In the treatment of strictures complicated with extravasation of urine or fistulæ external urethrotomy, either with or without a guide, is the proper procedure. In impermeable strictures, of course, internal urethrotomy is impossible, so that we have for treatment by that method the strictures which, though permeable, are not suited to treatment by simple dilatation. Our object, of course, is first to relieve the disability which the stricture causes,—that is, we wish to enable the patient to return to his work as soon as possible. We also desire to afford him the best prospect of permanent relief with the least distress and danger from the procedures adopted. It was because of my dissatisfaction with the results of external cutting, as compared with internal, that caused me to favor the latter and eschew, when possible, the former. When, on one occasion, I was impelled to discharge a patient who had a small urinary fistula still remaining, after a long stay in the hospital, following an external urethrotomy, it caused me to doubt as to whether I had done for him the best that his case permitted. When, on another occasion, a few days after the operation, I was only enabled to again introduce the catheter by an amount of effort exceedingly distressing physically to the patient and mentally to myself, then the resolve was formed to avoid the external procedure whenever possible. If both operations were to pursue favorable courses the internal operation consumes in healing about one-third of the time required for an external one. A stay in the hospital of seven to nine days is enough for the former, and the latter will require three to three and a half weeks, and often longer.

After dismissal both classes of patients should have sounds passed for a considerable time to guard against a recontraction. As regards the post-operative comfort of the patient there is no comparison. The internal urethrotomy practically requires no extra attention. With the external case the escaping urine wets the bed and demands the most careful attention. The discomfort from this cause is often marked, particularly when the nurse is careless or indifferent, even bed-sores are liable to form from lying on the urine-soaked dressing or draw-sheet.

The difference in the amount of tissue involved is marked. The internal operation divides about one to two centimetres (one-half to three-quarters inch) of the urethra to the depth of a half to three-quarters of a centimetre. Compare this with the four- to six-centimetre incision from the outside! This large wound has to granulate

and heal, and that takes time; it has to be cleansed and dressed, and that causes pain.

The bladder usually does not tolerate a catheter for any great length of time. If left in longer than three days a cystitis is liable to be engendered.

On its removal the subsequent passage of sounds is not always easy, my own experience in one case has already been related. In others my residents have failed to pass a sound, and then the case demands that the surgeon himself shall carry out this portion of the treatment, not a desirable thing when the service is already large. Sometimes in these attempts the instrument, particularly if flexible, *will* persist in wandering around the depths of the wound, and even may come out through it instead of smoothly passing on into the bladder. All this disturbs and retards healing to the detriment of the patient. As to the comparative value of the two methods in effecting a cure, my belief is that it is slightly in favor of the internal, this on account of the less extent of the tissues involved. There is not much difference, however, if the external operation is skilfully done and pursues a very favorable course, but even then its results are not any better. The ultimate ground on which a decision must be reached is the relative dangers of the two procedures. There are two,—hemorrhage and sepsis, with or without urinary infiltration. As regards the former, I have heard of no deaths caused by it in internal urethrotomy, nor have I had any trouble from that source, but I have heard of a death from hemorrhage after external urethrotomy, and have felt it necessary not only to most carefully ligate all possible bleeding points, but also to pack the wound snugly and retain the packing in place for several days. The question of urinary fever and sepsis is the real buttress on which the opposition to internal urethrotomy rests. The fear of this is largely a heritage from former practice rather than from recent results. It is practically eliminated by modern antiseptic methods. I am hardly prepared as yet to admit that urinary fever is due solely to an infectious element. Chills sometimes follow too closely on urethral manipulations to exclude other agencies. It is more likely to be due, at least to some extent, to nervous disturbance in addition to sepsis. Urinary infiltration is to be avoided by leaving a catheter in the bladder for three days, at which time the wound will have been so closed by plastic material as to prevent the urine gaining access to the tissue spaces. Sepsis is prevented by rendering the urine antiseptic, by administering antiseptics, by the mouth as well as using them locally, and observing a careful technique.

During my recent term of service at the Episcopal Hospital three cases occurred close together that will serve as illustrations. Case I

was a man, aged 53 years, who had had gonorrhea when a young man, and had been under treatment subsequently for stricture by dilatation. After admission to the hospital he was able, at times, to void a little urine, but at no time was it possible to pass an instrument. There was one stricture near the glans and another tight one in the membranous portion of the urethra. There were also false passages. He was put on salol and boracic acid, each five grains, three times daily, and on the operating-table, under ether, a filiform bougie, after an hour's effort, was introduced. A Gouley tunnelled staff was passed over this, followed by a Teevan's urethrotome, and the stricture cut on the roof of the urethra. A No. 26 (French scale) English catheter was introduced and the bladder washed out with boracic acid solution. He had a slight chill on the day following the operation, and his temperature rose to 101⅖° F. The next day, however, it was normal; on the third day the catheter was removed, and in a week's time he was up and about, using a No. 28 or 30 sound. The second case was a man aged 43 years. He denied venereal disease, but had bladder trouble for three months. He had painful, scanty, and frequent micturition. He was treated as was the first case. The stricture was in the bulbous urethra, and a filiform bougie was only introduced on the operating table after long-continued efforts. Following the operation he had rather a severe chill, but his temperature only rose to 100°, and on the second day it became normal and stayed there. He was discharged from the hospital on the ninth day, having been walking about for several days. A No. 26 French scale bougie was introduced readily, and even a larger one could be passed. Case III was aged 39 years. He had had two attacks of gonorrhea, gleet following the last attack for four months. For two months previous to admission his stream had been becoming smaller, and he passed only a slight amount of urine at a time, and had pain, frequent micturition, and other symptoms of bladder distress. After the administration of boracic acid and salol he was operated on and two strictures divided, one was just behind the meatus and the other in the membranous urethra. His highest temperature was 100⅗°, he had no chill, and was up in a week's time, and discharged, to attend as an out-patient, on the ninth day.

Here were three patients with strictures at the membranous or bulbous urethra, in none of which was an instrument capable of being passed until after about an hour's trial on the operating table, when success was obtained with a filiform bougie.

Two of the cases had chills following the operation, but they were not severe, and the highest temperature noted was 101⅖° F. In all three the temperature had become normal by the third to the fifth day. The retained catheter was removed on the third day, and they

were out of bed by the fifth to seventh, and dismissed for treatment as out-patients by the ninth day. The extremely rapid and favorable course pursued by these three cases compared with what would have followed had external urethrotomy been done, will be appreciated by any one who has done the latter operation. My experience has only extended over perhaps ten or a dozen cases, but the absolute lack of any complications whatever has recommended the internal operation to me favorably, and I am inclined to do it, whenever it is possible to do so, to the exclusion of external urethrotomy. The method of procedure is as follows: The urine is rendered antiseptic by giving five grains of salol and five grains of boracic acid, three or four times daily. This is to be begun several days before the operation, if possible. An anesthetic having been given, the penis is washed with weak bichloride solution (1 to 2000) and the urethra injected with boracic solution followed by iodoform and glycerin, 10 per cent. A filiform bougie is then introduced, and over it a Gouley tunnelled staff. This being withdrawn, a Maisonneuve or Teevan urethrotome is inserted and the stricture cut on the roof of the urethra. My urethrotome is a Teevan, and cuts to about a No. 26 French. On its withdrawal Nos. 26, 28, and 30 sounds are passed. A new English catheter, about No. 26, is introduced and the bladder and urethra syringed out with a boracic acid or very weak bichloride solution, and the catheter tied in. Sometimes a couple of drachms of iodoform and glycerin are injected, part of which flows away. After the operation the boracic acid and salol are continued three times daily, or, as I have done, three grains of methylene blue are given in capsules three times daily. This makes the urine distinctly blue. The catheter is allowed to remain in the urethra until the third day, and sounds passed on alternate days thereafter. The patient is allowed up on the fifth to the seventh day, and is usually ready to leave the hospital to attend at the dispensary on the ninth. He could even be discharged earlier, if necessary, but I prefer to keep them until every liability to trouble has been passed.

The Diagnosis of Persistence of the Ductus Arteriosus Botalli.

Zinn (*Berliner klinische Wochenschrift*, No. 20, 1898), reporting a case of persistence of the ductus arteriosus in a woman, aged 37 years, based his diagnosis upon an increase in the width of the cardiac dulness to the right, an increase in its length above and along the left edge of the sternum, a marked systolic thrill and murmur, both of which extended into the diastole, transmission of the murmur into the vessels of the neck and the left interscapular space, and the absence of cyanosis. A skiagraph revealed a shadow corresponding with a large artery, which was most probably the pulmonary.

AN EPIDEMIC OF DIPHTHERIA AND TONSILLITIS TRACED TO AN INFECTED MILK-SUPPLY.

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From the following history of a minor epidemic of diphtheria and of tonsillitis it will be seen that milk can be, and often is, the means of spreading these diseases.

Since the days of bacteriology epidemiologists do not consider that drinking water or atmosphere are important factors in spreading diphtheria, but rather conditions of social intercourse, such as schools, churches, or contact with utensils employed in the sick-room or elsewhere, such as drinking cups, etc., are important influences in the spread of the disease.

The bacilli must reach the mucous membrane of the mouth by contact with other mucous membrane, as in kissing, or something that a diseased mucous membrane has contaminated, as a spoon or slate-pencil, or by directly inhaling flecks of false membrane, or saliva forcibly discharged from a diphtheritic throat, or else the contagium must be spread by food in some way, as in the present instance. The infection in diphtheria is generally *put* into the mouth by the patient himself. A small epidemic in my practice was caused by the children indiscriminately putting marbles into their mouths during a game, one of them being ill with incipient diphtheria. From March 22 until April 29, 1898, five weeks, but six cases of diphtheria had been reported to the Philadelphia Board of Health as occurring in the Twenty-second Ward, commonly known as Germantown. From April 30 to May 15 twenty cases were reported, and of these fifteen occurred between April 30 and May 7.

Many of these cases I saw in conjunction with my colleagues, and of the twenty, thirteen I studied bacteriologically by means of serum cultures.

In each of these seventeen cases, associated with the bacillus of diphtheria, I found the streptococcus pyogenes.

Here was a sudden outbreak of diphtheria occurring, for the most part, among the best people of the town, and starting suddenly, and in every case streptococci were found associated with the diphtheria bacilli. At a glance it must be seen that there were certain common features in the etiology of each case,—*i.e.*, the presence of the strepto-

cocci and the period of invasion, which was about April 25, 1898. Each case began to be sick about this time, and yet there was no common school to which the children all went, many had not started school, and not a few adults had the disease. The patients lived at different parts of the town, some of them two miles apart. Some had not been out of the house for weeks and could not possibly have been exposed to a case of diphtheria or any one who had been. Clinically the severest cases developed earlier, the worst case was taken sick on the 27th of April, and died on the 30th, and the next two worse cases developed on the same date, and although very ill fortunately recovered. After this, the cases that I saw were very mild, or at least not at all dangerously sick.

The husband of a woman who had the disease remarked to me that three of the families in which diphtheria existed all drank of a certain man's milk, which for politic reasons I shall call Blue Bell. Upon getting this clue a hurried investigation revealed the fact that almost every case of diphtheria in town had used the Blue Bell milk, and during the whole epidemic there were but two cases that had not used it.

On the 2d of May a sample of milk was secured from the dairyman and studied bacteriologically. Cultures upon serum were made from the milk, and glycerin-agar plates were poured from it. Also a guinea-pig was injected with it. In scraping from the serum-tubes a copious growth of streptococci was found, and here and there sparsely distributed were small curved bacilli, bizarre and clubbed in outline, and exhibiting here and there metachromatism with Löffler's blue. Secondary serum cultures made from these tubes failed to isolate the diphtheria bacillus or from the agar plates.

Twelve hours after the guinea-pig had received a few cubic centimetres of milk in the abdomen it was dead, and a post-mortem showed rapid pus-formation, septic peritonitis, etc. Microscopic and cultural examinations failed to show the diphtheria bacillus, but many streptococci were seen and isolated. Although in the interior of some of the leucocytes bacilli resembling the Klebs-Löffler organism could be seen. While the presence of the diphtheria bacillus could not be proved in the milk, yet, since every diphtheria case had used it and every case had streptococci in its throat, the inference is plain that drinking the milk was the cause of the diphtheria.

Besides the diphtheria cases, many adults suffered from acute infected tonsillitis with exudation in the crypts of the tonsils. Cultures from some of the throats showed numerous streptococci. All of these adults drank Blue Bell milk. Milk must be considered an important etiological factor in tonsillitis; cows often suffer from mastitis; one

form of this trouble is caused by a specific streptococcus which is non-pathogenic to guinea-pigs; they might easily have a mastitis caused by the streptococcus pyogenes, which is pathogenic to guinea-pigs. Through the courtesy of Dr. Case, of the Philadelphia Health Bureau, I was enabled to compile the following table giving all the cases reported to the Health Office:

Date.	Name.	Milk.	School.	Street.
March 22 to April 29.	Salmons.	C——a.	St. Luke's.	Rittenhouse.
	McDevitt.	McC.	None.	Osceola.
	Patterton.	Flourtown.	St. Michael's.	Magnolia.
	Cook.	Correa.	Catholic.	Centre.
	McSpar.	H——g.	Keyser.	Morris.
	Edds.	Fern Rock.	Centre.	Penn.
April 30 to May 7.	Hen S. (Culture).	Blue Bell.	None.	High.
	E. Shaw. (Culture).	" "	Calvary.	Morris.
	O. D.	" "	None.	Knox.
	Carlile. (Culture).	" "	Friends.	Harvey.
	Murphey.	" "	———	High.
	D'——r.	" "	No School.	Washington (W).
	Wells. (Culture).	" "	None.	E. Washington.
	Wells. (Culture).	" "	"	E. Washington.
	Wells. (Culture).	" "	"	E. Washington.
	H'y's. (Culture).	" "	No School.	E. Washington.
	J——n. (Culture).	" "	St. Vincent's.	Stafford.
	Harris.	" "	None.	Walnut Lane.
	D——s. (Culture).	" "	"	Walnut Lane.
	L——tt.	" "	13th and Race.	Wayne.
	Myers.	" "	None.	Nash.
May 8 to May 15.	Clax. (Culture).	McIl.	None.	Newhall.
	Bach. (Culture).	H. and S.[1]	"	Wayne.
	Whitney.	Blue Bell.	"	Johnson.
	Carlile.[2] (Culture).	" "	"	Harvey.
	Orbison. (Culture).	H——g.	"	E. Duval.

Immediately after finding that all the cases of diphtheria reported in the first week in May had used Blue Bell milk, the Philadelphia Board of Health ordered the dairy closed and began an inspection of

[1] H. & S. borrowed milk from the Blue Bell dairy.

[2] Sterilized Blue Bell milk exposed, however, though diphtheria in house.

the premises. Upon the board's invitation, I took part in the investigation. All of the cows were carefully examined and no signs of disease were discovered, either on their teats or udders or elsewhere. The milk-house was clean and very neat.

From the fact that the epidemic began sharply in the end of April and was limited in extent, it hardly seems possible that any infected milk-ducts or teats could have been the cause of the outbreak; but rather the milk was probably infected from some source outside of the cows' bodies and for a short period only. The Klebs-Löffler bacilli falling into the milk, perhaps only a pailful of it,—milk being an excellent culture medium,—the bacilli rapidly increased. It is quite possible for cows to have a cutaneous diphtheria of the teats or of the milk-ducts. Diphtheria of the teats, according to Dr. Lennox Brown, is known in England as "chapped teats."

Cultures were made from the throat of the dairy-man, who two months previously had had a quinsy. These proved negative. From the throat of his nephew, aged 2, Klebs-Löffler bacilli were isolated. There were no clinical manifestations of the disease, however, in the throat, the only lesion noted was a pair of swollen tonsils, which did not look very much inflamed. Moreover, he had not been sick; then, too, he also had drank the milk and may have thus become infected.

Drs. Case, Pease, and Bemis, of the Health Bureau, investigated the premises, a simple survey of the stables interiorly and exteriorly showed them to be extremely unhygienic. The bedding was plastic with dung and there was insufficient light and much dust.

The stables were built at the lowest point, in a little dale, and the drainage overflowing from the privies round about, because of gravity, must soak through a stock of fodder outside the stable and the bedding inside. After percolating through the stables it could be seen oozing out into a vile-looking run from which intolerable odors arose.

Three weeks previous to the inspection a malignant case of diphtheria had developed in a house close by. All the slops from the sick-room were cast into an overflowing privy, and the drainage overflowing the ground ran down a slight incline into the fodder and stables, impregnating the bedding of the cows and food with, perhaps, diphtheria bacilli. The udders of the cows as they lay on the litter may have become infected and the bacilli fallen into the milk during milking.

Besides the presence of the Klebs-Löffler bacilli in the throat of the child, and the foul drainage in the stable, another possible factor in the contamination of the milk was a sick chicken in the dairy-yard. Clinically the fowl had true diphtheria, false membrane, most typical in appearance, was found in its throat and nostrils.

Bacteriologically the disease was evidently a diphtheria caused by another organism or organisms than the Klebs-Löffler bacillus. Cultures showed numerous streptococci and staphylococci, and a peculiar bacillus resembling an organism often found in chickens suffering from fowl diphtheria, and which Veranus A. Moore, in a bulletin of the Agricultural Department, says is the bacillus of rabbit septicemia. Cultures from the membrane killed guinea-pigs in twelve hours, evidently from streptococcus infection. At a superficial glance this bacillus in its morphology resembled the diphtheria bacillus in that it was clubbed and curved.

An interesting clinical feature regarding immunization with antitoxin developed during the epidemic. On May 1 a baby, aged 8 months, who had been exposed to diphtheria—her sister having the disease—was injected with 200 units of Mulford's antitoxin. Two weeks afterwards I was asked to see the child and make a culture from a suspicious looking patch in the throat. After incubation, numerous Klebs-Löffler bacilli were found in the culture. The child had a very mild diphtheria, there was no glandular involvement, nor was there any prostration. For three days there was a temperature of 101° F. in the evening, however.

This child drank Blue Bell milk after it had been sterilized. It is probable that the disease really had begun to develop on May 1,—that is, the bacilli were in the throat and the antitoxin prevented their development until it had been excreted at the end of two weeks. The child was removed from home immediately after her sister was taken sick, on May 1. This establishes the protective period of 200 units of reliable antitoxin for a child of 8 months.

Hereditary Chorea with Necropsy.

Lannois and Paviot (*Revue de Médecine*, March, 1898) reports two cases in women, in whom the chorea had existed over twenty, and six to seven years respectively. At the necropsy the brains were found markedly atrophic, weighing 950 and 980 grammes respectively. Microscopically there was a diffuse infiltration of granular bodies, which stained intensely with methylene blue. This was most marked in the region of the central convolutions (the large polygonal cells). Comparing these lesions with the findings of other observers, the authors note the unreasonableness of attempting to arrange all cases of hereditary chorea in one class. Although all cases of choreatic movements are to be referred to irritation of the motor neuron, still there are considerable macroscopic differences between the congenital chorea of early childhood, the symptomatic chorea of severe lesions of the brain, and cases such as the two reported.

ALUMNI NOTES.

DEATH OF PROFESSOR WILLIAM PEPPER, M.D., LL.D.

William Pepper, M.D., LL.D., Professor of Theory and Practice of Medicine and of Clinical Medicine, and late Provost of the University of Pennsylvania, died suddenly of angina pectoris during a visit to Pleasonton, California, on July 28, 1898.

Reunion of the Class of 1868, Medical.

There was a reunion of the Class of 1868, Medical Department, on the evening of June 7, Alumni day. The members of the class participated in a banquet at the Bellevue. Those present were Dr. James Aiken, Dr. G. W. Ammon, Dr. G. W. Bailey, Dr. E. P. Bernardy, Dr. A. H. Boyer, Dr. Francis W. Boyer, Dr. H. R. Burton, Dr. W. E. Doughty, Dr. J. Z. Gerhard, Dr. E. Grumbine, Dr. Geo. L. Horn, Dr. S. W. Latta, Dr. R. S. McCombs, Dr. H. McGowan, Dr. A. F. Müller, Dr. Wm. G. Porter, Dr. W. H. Robinson, Dr. J. T. Rothrock, Dr. Wharton Sinkler, Dr. T. C. Stellwagen, Dr. Wm. Stites, Dr. C. H. Vinton, Dr. J. O. White, Dr. Clayton D. Fretz, and Dr. G. M. D. Peltz.

The committee on the dinner consisted of Dr. Wharton Sinkler, chairman, Dr. S. W. Latta, Dr. E. P. Bernardy, Dr. W. H. Porter, Dr. R. S. McCombs, Dr. G. M. D. Peltz, and Dr. J. O. White.

Letters were read from Dr. Stillé and Dr. Penrose, who are the surviving members of the faculty of 1868.

The Museum of Archeology.

The building which is to be the home of the Museum of Archeology of the University of Pennsylvania is rapidly nearing completion, and is expected to be ready for occupancy some time in January, 1899.

The building is a pure specimen of the architecture of Northern Italy during the Middle Ages. It is built of coarse brick-work, relieved at the arches of the windows and at odd places by marble wings.

The general plans for the extension of the museum are on an elaborate scale, and, when completed, there will be a group of buildings, magnificent and novel in architecture, occupying all of the

ground southeast of the present structure, and extending to the western end of the South Street bridge. The present building, which forms only about one-fifth of the entire scheme, is constructed upon three sides of a quadrangle, the side on Spruce Street being open, and the eastern and western wings extending close to the Spruce Street front. Within the quad, between the wings and extending back to the main building, is the court-yard. The structure covers an area of about 260 feet square.

The building is surrounded by two walls, built of rough brick, supporting terraces. The outside wall varies in height from eighteen inches to two feet, and the inside wall is from six to eight feet in height. Through these terraces the visitor enters the court-yard, and directly in front of the stately main entrance is a rectangular pool, and leading thereto from various portions of the yard will be arranged numerous paths. The court-yard will be beautified by landscape gardening. From the court-yard directly back of the pool the wide marble stairs rise on either side at right angles to the building to a landing, and then rising to the second or main exhibition floor across the front reach the central or main door. Through this doorway, the frame of which is constructed of fine Italian marble, the visitor enters and discovers stairs running down to the main floor, which is about ten feet below the main entrance, on a level with the terrace. There is the central hall for exhibition purposes, having a floor space of about 3000 square feet. To the left, on the southern side of the building, are two exhibition halls, containing about 2000 square feet, and in the eastern wing is a third exhibition hall of similar capacity.

The front apartment of the eastern wing occupies the full height of the building, and has a vaulted ceiling. This will be used for the reference library. The western wing of the building is a duplicate of the eastern, with the exception of the front apartment. This has also a vaulted ceiling and a gallery, and will be used as a lecture-room, seating 425 persons. Both the library and lecture-room have direct entrances, giving immediate access to and from the court-yard and street.

Directly back of the present structure foundations have been arranged in place for an immense circular building, which, when constructed, will rise to an immense dome, dominating the entire edifice. This dome will be built upon the axis of Pine Street, and from University Walk it will be seen towering in majestic grandeur.

The interior of the museum will be furnished plainly, but little wood, and that of oak, being used, as the building is strictly fire-proof. The floors will all be laid with Terraza mosaics, and the borders will be

of marble, while the base will be built generally of Tennessee marble. All of the exhibition halls on the second floor will have high vaulted ceilings. Lunettes will occur frequently throughout the floor. The roof will be of heavy tile laid directly on the iron girders, and the eaves, overlooking the court-yard, will be of rich glass mosaics.

It is hoped to extend the structure according to the general plans, as the acquisitions of the Department of Archeology promise to fill all of the space now provided.

The University Walk.

One of the recent improvements effected on the University grounds, along the site of Pine Street from Thirty-sixth to Thirty-ninth and Woodland Avenue, and along Thirty-sixth Street from Pine to Spruce Streets. This is known as "University Walk," which, in connection with the beautiful University Botanical Gardens, directly adjoining, affords a quiet retreat rivalling in beauty any of the famous walks of English and European universities.

A year ago efforts were inaugurated to have certain streets vacated on the city plans, as the whole of the adjoining property belonged to the University of Pennsylvania. Largely through the earnest work of Provost and Mrs. C. C. Harrison, the desired result by which Pine Street, from Thirty-fourth to Thirty-sixth Streets, and Thirty-fourth Street from Pine to Spruce, were placed at the disposal of the University, was accomplished. The first steps for transferring the thoroughfares were only taken in the middle of March. The plans for the improvement were submitted by Professor McFarlane, of the Biological Department, and the task of putting these into effect was then begun. Progress was rapid, and by the end of May what had formerly been an uneven stretch of cobble-stone pavement had been converted into a garden avenue, which in the not distant future will constitute the finest feature on the University campus.

Entering upon the Walk, which is itself twelve feet in width, the visitor finds himself in the midst of what appears to be a luxuriant park. A row of Lombardy poplars is set out at a distance of about twenty-five feet from the Walk on either side, and these, after a few years of growth, will give a cooling shade on warm days. On both sides of the Walk, between the trees, beds of shrubbery are planted, fine specimens of native rhododendrons.

On the left of the Walk are the dormitories, the terra-cotta walls rising in striking contrast from the surrounding green, and farther down, on the right, is the ivy-covered building of the Biological Department. Down at the eastern end, close to where the Walk turns towards Spruce Street, is the low stone building of the Veterinary

Department, the wall of which before many years will be hidden from view by the ivy. On the left, east of the dormitories, stretches the old base-ball field, upon the site of which will be erected additional dormitories, and at the corner of Thirty-fourth and Spruce Streets there will rise the Commons Hall, the dining-room of which will seat at one time 1000 students.

Several fine architectural features will be added in the near future to the Walk. Plans have already been prepared for a memorial gateway, which will be donated by one of the classes which has passed through the institution, and it is expected that other gates of a similar character will be erected by various classes. At intervals, on either side of the Walk, little circular recess-ways have been opened in the sod, and around these garden-seats have been disposed.

Appointments.

Dr. Thomas J. Yarrow, Jr., has been elected pathologist and bacteriologist to the Samaritan Hospital.

Dr. Charles I. Redfield, Class of '94, M., has been appointed health officer of the city of Middletown, New York.

Governor Tunnell, of Delaware, has commissioned the following Alumni of the University of Pennsylvania to be trustees for the State Hospital for the Insane at Farnhurst: Dr. Paris T. Carlisle, '87, M., of Frederica, and Dr. William P. Orr, '84, M., of Lewes.

Mayor McLean, of Wilmington, Delaware, has appointed Dr. John P. Wales, '52, M., and Dr. Henry Patterson, '79, M., members of the board of health of that city.

Army and Navy Appointments.

Dr. Archibald G. Thomson has been appointed surgeon of the Third Regiment, N. G. P., by Governor Hastings.

Dr. George Morrison Coates, Class of '97, of Berwyn, Pa., was recently appointed an assistant surgeon in the volunteer service of the United States navy after an examination that was particularly commended by Surgeon-General Van Reypen, of the navy. He was at once assigned to duty on the receiving ship "Richmond," at League Island Navy-Yard, and since then has been ordered to duty on board the United States cruiser "New Orleans" (formerly the Brazilian man-of-war "Amazonas").

Dr. Joseph Sailer has been commissioned as assistant surgeon in the United States navy, and has been assigned to the "Arctic."

Dr. Wm. M. Van Patter, Class of '93, is assistant surgeon, with

rank of captain, in the First Washington Volunteers, now stationed at San Francisco.

With Dewey.

The following Alumni of the medical school are with Rear-Admiral Dewey at Manila: Dr. Abel F. Price, medical inspector, U. S. N., and Dr. Charles Poor Kindleberger, assistant surgeon, U.S.N. Both gentlemen are aboard the flag-ship "Olympia."

Necrology.

Dr. Louis E. Livingood, aged 30 years, of Reading, was drowned at sea on July 4, 1898, in the catastrophe which resulted in the loss of "La Bourgogne." Dr. Livingood spent his early years in private schools, among them Shortledge's academy, at Media. He then entered the gymnasium in Berlin, Germany, after which he took a four years' course at Princeton, graduating in 1890. He was an instructor in French and German at Princeton two years, after which he took a three years' course in the Medical Department of the University of Pennsylvania. He next became a Fellow at Johns Hopkins University, Baltimore, and for two years was an instructor in pathology.

Dr. Peter Hooper died, in Philadelphia, on July 1, 1898. Dr. Hooper was born near Belvidere, N. J., about forty years ago. After obtaining an education in the public schools, he studied in Phillips's academy, Andover, Mass., and Trinity College, Hartford, Conn., after which he entered the University of Pennsylvania, from which he graduated in 1880, and subsequently removed to Tioga, Phila., where he built up a large practice.

Dr. John Charles Granger, of the Class of '97, died in Philadelphia, May 2, 1898.

Dr. James B. Thompson, Class of '86, died of Asiatic cholera, March 31, 1898, at Petchaburee, Siam, where he had been stationed as a missionary of the Presbyterian Board of Foreign Missions since his graduation.

EDITORIAL.

INFANTILE SCURVY IN NORTH AMERICA.

In view of the fact that the subject of infantile scurvy has received but little study until recently, and also because no attempt has been made hitherto to analyze any large number of cases, the report of the collective investigation instituted by the American Pediatric Society is of more than passing interest. So many questions are in dispute, or are at present incapable of satisfactory explanation, that any effort to elucidate these must excite the interest of the profession. Unfortunately, the report alluded to has not added as much to our knowledge of the subject as could have been wished. It is, however, a beginning, and much important information has been established. Perhaps more could not reasonably have been expected in an initial effort of this kind. Every one who has had to do with such work has experienced the same difficulty in making tabulations of any large number of cases. The reasons for this are many. First, each example of a disease that a physician is called upon to treat may have an individuality of its own, as has also the patient, that would be difficult to describe. Then, the personal equation of the reporter has a very distinct part in the coloring of the report. The same question submitted to half a dozen physicians, who had had equal opportunities for observing a disease, would be answered, probably, somewhat differently in each case, but, of course, according to the impression made upon the reporter. Finally, many physicians, on account of the very great demands made upon their time, fail to keep careful notes of all the details of their cases, so that when such papers are submitted as were sent out by the American Pediatric Society many questions must be answered from memory or left blank.

This is somewhat of a digression, but we hope the importance of the subject will be an ample apology. Of the very great value of such investigations as that here referred to there can be no question. They are possible, by great expenditure of time and labor, only if the inquiries sent out are fully answered. It must be said, however, of a very greatly overworked profession that usually this duty is cheerfully performed.

To return to the American Pediatric Society's report. The com-

mittee have wisely given the result of their inquiries without, in most instances, any expression of opinion. The tabulation embraces 379 cases, reported by 138 observers. Of this number there were four black and one Chinese. This is the only comment on the question of race. The tables show that the sexes are about equally liable to the disease (males, 51 per cent.; females, 49 per cent.). Age is an important factor. The report shows that 48 per cent. of the cases developed from the seventh to the tenth month inclusive, and that 75 per cent. developed from the seventh to the fourteenth month inclusive. The extremes of age of the cases studied were three weeks and nine years. The replies seem to show that scurvy is most frequently met with among children of the well-to-do classes; no less than 83 per cent. being observed in private practice. The inquiry as to the health previous to the attack brought out the sole fact that digestive disturbances were rather common. The family history did not seem to have any bearing.

The most important etiologic factor seems to be the diet. The replies received indicated that the disease depended upon the nature of the food used in 275 cases, while in twenty-four cases the answer was negative, or other causes were assigned. The combinations of diet were so varied that it is impossible to tabulate them. However, proprietary foods had been employed in 60 per cent. of the cases reported.

The first symptoms observed were: Pain and tenderness, 145; affection of the gums, 42; interference with motion, 36; anemia, 27; cutaneous hemorrhages, 22; swellings, 16; restlessness, 6; anorexia, 5; debility, 5; diarrhea, 5; constipation, 2; hemorrhage from nose, 1; hemorrhage from mouth, 1; hemorrhage from rectum, 1; hematuria, 3; "hematoma of tongue," 1; irritability, 3; vomiting, 1; fever, 1; opisthotonos, 1; sweating, 1.

Pain seems to be a very prominent symptom. It may be present when at rest or may be developed only on motion. This symptom is reported in 314 instances. Pain existed when the child was still in 91 cases, and was absent in 134 cases under this condition. The interference with motion described doubtless depends entirely upon the pain that is thus elicited. Rigidity is to be explained in the same way. The frequent involvement of the gums is of great interest. They were reported to have been diseased in 313 cases, and healthy in sixteen instances. The condition varied from slight swelling to great sponginess and even ulceration. The condition of the gums appeared to develop irrespective of the presence or absence of teeth. Cutaneous hemorrhages and hemorrhage from the mucous membranes occurred in rather more than one-half of the cases. The instances of fractures described in infantile scurvy are doubtless usually epiphyseal separa-

tion. Fever is not a prominent symptom, but was said to have been present in about two-thirds of the cases in which this point was mentioned. Malnutrition and anemia were common, the former is recorded in 167 cases, and was absent in 50 cases; the latter was present in 254 cases. In discussing the relation of infantile scurvy and rickets, the committee conclude that the evidence seems to indicate only accidental association of the two diseases; certainly not any causal relation between them. It is stated that the same error in diet that produced one also caused the other, when the two were found associated.

The report states that the only disease for which infantile scurvy was repeatedly mistaken was rheumatism. In several instances the swelling of the legs was supposed to be due to sarcoma. The apparent paralytic condition in a few instances led to any error in diagnosis.

It is difficult to properly estimate the value of any particular line of treatment, inasmuch as a combination of medicinal measures, diet, and fruit-juices were employed in most instances. The disease seems to disappear promptly, as a rule, upon instituting the proper diet and such other measures as are indicated.

The following conclusions seem justifiable, the committee believe, from a combined study of the etiology and treatment: (1) That the development of the disease follows in each case the prolonged employment of some diet unsuitable to the individual child, and that often a change of diet which at first thought would seem to be unsuitable may be followed by prompt recovery. (2) That in spite of this fact, regarding individual cases, the combined report of collected cases makes it probable that in these there were certain forms of diet which were particularly prone to be followed by the development of scurvy. First, in point of numbers, are to be mentioned the various proprietary foods. (3) In fine, that in general the cases reported seem to indicate that the further a food is removed in character from the natural food of a child, the more likely its use is to be followed by the development of scurvy.

Of the 379 patients, 29 died; two of these surely, and probably many others, from causes that seem remote from the attack of scurvy. Six autopsies are reported. These showed the following lesions: Hemorrhagic spots on pericardium and on surface of liver; subperiosteal hemorrhage of long bones; subpleural hemorrhages; separation of lower epiphysis from shaft of femur; bronchopneumonia; hemorrhage into muscles of thigh, swelling of opposite knee and both ankles; exudative nephritis; right leg from knee to ankle stuffed with a puffy mass, replacing the normal tissue, separation of both bones one inch above the ankle; bloody serum in pleural cavity; perforating ulcer of stomach; tuberculous (?) process in peritoneum.

MEDICAL PROGRESS.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM PEPPER, M.D., LL.D., AND JAMES TYSON, M.D.,

ASSISTED BY

M. HOWARD FUSSELL, M.D., AND A. O. J. KELLY, M.D.

Post-Diphtheritic Hemiplegia.

Slawyk, at a recent meeting of the Gesellschaft der Charitéärzte, in Berlin, reported the case of a girl, aged 7 years, affected with diphtheria, there being a slight false membrane on both tonsils. On the thirteenth day of the disease, cardiac weakness and paralysis of the fauces developed. The child was very weak and much emaciated; the urine contained a considerable quantity of albumin. Suddenly the temperature became much elevated, and there developed a left facial paralysis, and complete paralysis of the left half of the body. Consciousness was relatively unimpaired. With increasing weakness the child died. The necropsy revealed dilatation and parenchymatous degeneration of the heart; the right hemisphere of the brain in toto softened; hemorrhagic foci in the corpus striatum; and embolus of the Sylvian artery. Post-diphtheritic hemiplegia is rather uncommon. But forty cases could be discovered in the literature. These were ascribed to embolus (from marasmic thrombus of the heart), thrombosis, hemorrhage (as a result of nephritis), and encephalitis the result of mixed infection. Necropsies were performed in thirteen cases. These revealed hemorrhage in one case, encephalitis in one case, thrombosis in one case, and embolus in ten cases.

Metabolism in Total Resection of the Stomach.

Hoffmann (*Münchener medicinische Wochenschrift*, May 3; *British Medical Journal*, June 11, 1898) has investigated the metabolism in Schlatter's well-known case of total resection of the stomach. Six and a half months after the operation the patient had gained 5.4 kilogrammes in weight. It was found that the amount of nitrogen present in the stools varied within normal limits, but during the six days a complete nitrogenous balance was not obtained as occurs in health. There was a retention of from 1 gramme to 1.4 grammes of nitrogen. This retention is known to occur in convalescence from acute illnesses, etc. There was no increase in weight during the first period of observation. A month and a half later a further investigation was made with a more varied diet, and here the absence of the stomach seemed of no importance. A nitrogenous balance could now be established, showing that the

regeneration of the blood was so far complete that there was no longer any need of retention of nitrogen. The retention of phosphorus was also marked. Hoffmann found that fatty matters were satisfactorily dealt with, so that of 8.5 grammes taken only 4.64 grammes were excreted. He adds that this shows how incorrect it is to treat patients suffering from chronic stomach disorders with as little food as possible. The author has also investigated the question of the action of hydrochloric acid upon putrefactive processes, and he concludes that the absence of the acid in this case was without influence upon these putrefactive processes in the alimentary canal. He goes so far as to add that the administration of hydrochloric acid as a disinfectant of the intestinal contents is useless. As regards the quantity of chlorides in the urine, there was no decrease after the chief meal in this case. This confirms the current view that the diminution of the chlorides in the urine after a meal is due to the hydrochloric acid excreted by the stomach. The absolute acidity of the urine was higher in this case than in ordinary individuals. The retention of sodic chloride was striking, without there being any increase in the body weight. There was no relationship between the excretion of chlorides and the acidity of the urine in the different periods of the day. The urine was examined for the presence of pepsin, but no trace was found.

Colitis in Childhood.

Guinon (*Revue mensuelle de Maladies de l'Enfance*, March, 1898) refers to the fact that, although in sucklings one may speak of but a general gastroenteritis, in older children, the recognition of disease of different portions of the intestinal tract is more feasible. He distinguishes acute and chronic forms of colitis. Of the former there are two varieties,—the catarrhal and the dysenteriform. The acute catarrhal is, as all intestinal catarrhs, more common during the summer, especially towards its end, and the causes are well-known injurious influences, such as the eating of unripe fruit, etc. It affects especially children under three years of age, and commonly continues six to ten days. The attack is ushered in with fever, vomiting, and diarrhea, the stools being thin and watery. The characteristic symptoms are soon established,—colic, tenesmus, frequent malodorous stools, consisting largely or entirely of mucus, sometimes tinged with blood. In severe cases the pain may be excessive, precluding the exhibition of a preliminary purgative. Hot compresses should be applied to the abdomen, a warm bath should be given twice daily, and a single enema containing opium. By the mouth antipyrin; this failing, chloral. Milk and all solid food should be withheld, and the child given only broths, thin gruels, and albuminous barley-water (made by beating the white of an egg in barley-water). When the acute symptoms have subsided, small, warm, rectal injections are indicated,—common salt, two grains to the ounce, or biborate of sodium, one grain to the ounce. Antiseptic drugs are contraindicated because of their irritating properties. In the dysenteriform variety, fever is higher, colic and tenderness over the colon more intense, and there is contraction of the abdominal muscles. The stools consist of mucus intimately mixed with blood. Small, frequently repeated, doses of ipecac, combined with a little opium, is best administered in this form. If at the end of three or four days the stools have not become fecal, copious, warm, rectal injections are indicated (silver nitrate, two grains to the ounce). Physiological salt solution by sub-

cutaneous injections are advised if symptoms of collapse develop. May give a pint within twenty-four hours. In these acute forms, in the differential diagnosis, we have to consider ordinary enteritis, peritonitis, and typhoid fever. There may occur also localized forms, such as typhlitis and sigmoiditis. The chronic form is more common than is popularly supposed, and affects especially children after the second year of life who have suffered frequently from constipation. They are also generally neuropathic, and have an anemic, characteristic facies, which gives rise to confusion with anemia. The disease occurs either after acute colitis, or more slowly with attacks of colic, vague pains, etc. May distinguish a continuous and a paroxysmal variety, and of these simple and dysenteric forms. In the treatment, regulation of the diet is most important. It may be necessary to entirely withdraw milk for a time. Constipation, which is very apt to develop, must be guarded against, as it is likely to engender a fresh attack of colitis. Calomel and hydrochloric acid are recommended. Hot baths and hot compresses to the abdomen, night and morning, may also prove useful. Likely complications are appendicitis, cystitis, pruriginous skin manifestations (intoxications), and attacks of nervousness. Illustrative case-histories are detailed.

Actinomycosis of the Lungs and Thorax.

Karewski (*Berliner klinische Wochenschrift*, No. 17, 1898), reporting a case of actinomycosis of the lungs and reviewing the literature of the subject, has discovered records of but four cases in which recovery ensued. Karewski's case and one of the others was operated upon and a portion of the lung removed by the cautery. Many cases are possible of diagnosis and quite a few have been diagnosticated at a time when operation is still feasible. If a tumor appear externally operation should be performed immediately. Of importance in the diagnosis are a tumor or swelling at some portions of the chest with retraction at others, dense infiltration of the thoracic walls, signs of pleurisy without effusion, and marked chronicity of the symptoms. The actinomyces may be present either in the sputum or aspirated fluid, while tubercle bacilli and elastic fibres are absent. When the disease has extended beyond the lungs or pleura operation is contraindicated.

Disturbances in the Evacuation of the Urine in Children.

Kutner (*Berliner klinische Wochenschrift*, No. 19, 1898) reports the case of a boy, aged 8 years, who, since his sixth month of life, suffered frequently with retention of urine, which on one occasion persisted fifty-two hours. The affection had recently become chronic. In the mornings it was only with great effort and marked pain that urine could be voided, and the bladder could not be completely emptied. After excluding a urethral calculus and a congenital stricture, the diagnosis was made of a chronic reflex spasm of the internal sphincter of the bladder. Another case was that of a girl, aged 7 years, who since birth had unconsciously voided urine every two or three hours. Examination revealed a markedly distended bladder and the fact that the introduction of an instrument met with considerable resistance on the part of the sphincter of the bladder. The muscle was thus competent to render the bladder sufficient. The case was also a chronic spasm of the sphincter of the

bladder, and is thus explained: As a result of the transcendency of the sphincter over the muscular power of the bladder, the evacuation of urine was hindered and remained so until the limit of the receptivity of the urine on the part of the bladder was reached, when the muscular walls of the bladder caused the evacuation of a certain quantity of urine. As soon as the intravesicular pressure became diminished, the sphincter obtained again the transcendency and prevented the egress of additional urine. The cases are interesting, because, although both depended upon the same cause,—a functional disturbance of the sphincter,—a spasm, the result was different in each case. In both cases dilatation of the sphincters resulted in complete cures.

Blood Changes in Typhoid Fever.

Kolner (*Deutsches Archiv für klinische Medicin*, Vol. lx, Parts II and III). —In uncomplicated cases there never occurs any leucocytosis. During the second and third week—at the height of the disease—the number of the white corpuscles is small; at times they sink below the physiologic limit (even to 1000). When defervescence occurs the number returns again to the normal. In complications, such as pneumonia or intestinal hemorrhage, leucocytosis sometimes, but not always, occurs. Its development or not depends upon whether or not the typhoid fever or the complication has the ascendency. The red corpuscles are commonly diminished, and the hemaglobin more so. An examination of the blood, especially the estimation of the leucocytes, is considered of considerable diagnostic importance, as other infections, such as pneumonia, septic diseases, are almost always attended by leucocytosis.

The Palmo-Plantar Sign in Typhoid Fever.

Quentin (*Archives générale de Médecine*, May, 1898; *British Medical Journal*, June 11, 1898) draws attention to a sign which he considers to be of considerable use in the diagnosis of typhoid fever, and one which has hitherto not received much notice. It consists in a peculiar yellow coloration of the palms of the hands and the soles of the feet. During convalescence these same regions show marked desquamation. The writer points out that in a large series of cases of febrile affections collected by him, he has remarked the presence of a slight yellow tinge in some cases of acute articular rheumatism and tuberculosis, but that in typhoid this coloration is much more intense. The explanation is obscure, but that offered is that the epidermic tissues undergo a special nutritive change in the presence of typhoid fever, probably due to elimination of toxic products through the skin.

SURGERY.

UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.,

ASSISTED BY

ELLWOOD R. KIRBY, M.D.

Total Resection of the Scapula for Malignant Disease.

Berger (*Bulletin et Mémoires de la Société de Chirurgie de Paris,* Tome xxiii), in commenting on a successful case, lays it down as a rule that in total resection of this bone for tumor, as in interscapulo-thoracic amputations, division of the corresponding clavicle should be a preliminary stage of the operation. The chief difficulty of the operation is the uncertainty with regard to the situation of the axillary vessels, and the terminal branches of the brachial plexus, which are often hidden by the tumor. If these organs are involved in the disease, resection of the scapula alone will not suffice, and it will be necessary at the same time to remove the entire upper extremity.

Preliminary section of the clavicle enables the surgeon to expose the vessels and nerves, to make out their connections with the tumor, and to decide whether resection of the scapula alone can be practised with good prospects of success. The following steps should be taken in removal of the scapula when the axillary vessels are concealed by the tumor and their relation to the diseased part cannot be made out:

(1) The posterior and the superior portions of the tumor to be exposed by a suitable incision.

(2) The clavicle to be divided in the middle, and the two fragments to be separated, so that the condition and position of the large vessels and nerves may be observed.

(3) If these parts be free and not involved in the disease, divide the attachment of the deltoid to the scapula and clavicle, detach the capsule of the joint from the margins of the glenoid cavity, cut through the muscles which intervene between the scapula and the humerus, and divide all muscles inserted into the coracoid process.

(4) Clear the superior and axillary borders of the scapula, turn the bone over in a backward direction, separating the subscapular fossa from the chest, and, finally, to divide the muscles inserted into the posterior border of the bone.

Colotomy and Colostomy.

Von Mosetig-Moorhof (*Wiener medicinische Presse,* 1898, No. 3) reviews the accepted methods of forming an artificial anus, and describes a modification in technique which he has found useful in certain cases. The classical inguinal operation—that of Littré—he terms "colostomy;" it consists in bringing the descending colon up to the anterior abdominal wall, to which it is stitched, the opening into the lumen being made at once or after an interval, according to circumstances. The disadvantage of this simple operation is that it does

not entirely prevent the entry of feces into the distal part of the bowel, where they stagnate and tend to set up inflammatory troubles. To prevent this Madelung introduced true colotomy, in which the gut is cut completely across, the proximal portion brought out of the wound, and the distal closed by sutures and returned to the abdomen. This method is not entirely satisfactory, as the distal end tends to become distended by the accumulation of its own secretion, which may eventually lead to ulceration. König and Sonnenburg obviated this difficulty by leaving the upper extremity of this portion open and attached to the abdominal wall below the artificial anus; by this means the rectum can, if desired, be irrigated from above. Another means of preventing feces from getting into the rectum is by the formation of a spur, first devised by Verneuil, whose original plan has been considerably improved by later surgeons. The disadvantage of both this method and colotomy is that they require a long and freely movable colon and mesocolon; when they are inadvisable or impracticable the author recommends the method he has himself devised. This consists in the ordinary operation of colostomy performed at one sitting, but preceded by partial occlusion of the distal portion of the bowel. A ligature is tied round this, occluding it to about one-half its diameter, and the bulging serous surfaces on either side are sewn together with interrupted stitches. An artificial constriction is thus produced, which prevents the accumulation of feces in the rectum.

A New Method of Draining the Peritoneal Cavity.

Delageniere (*Bulletin et Mémoires de la Société de Chirurgie*, No. 12, 1898), holding that the means hitherto used for draining the abdomen after laparotomy are defective, proposes to drain this cavity in a similar way as a spirit lamp is drained by its wick. He employs a perforated nickel tube, in which is inserted a skein of absorbent cotton. This skein closely fits the interior of the metallic tube, and is frayed out as it projects from either end. Both the outer tube and the cotton can be readily sterilized, and the skein can be changed from time to time without removing the tube. In no case, the author states, should the metal tube be allowed to remain for a longer period than thirty-six hours. Excellent results, it is stated, have been obtained from this method of drainage, and after long and difficult abdominal operations the course of the after-treatment has thus been rendered absolutely apyretic. The nickel tubes used by the author vary in length from eight to ten centimetres, and in diameter from five to twenty millimetres.

Results of Forcible Straightening of the Spine.

Bilhaut (*Annales de Chirurgie et d'Orthopédie*, January, 1898) gives details of cases showing the increase in height following forcible straightening of the spine in Pott's disease. He finds that in all patients attacked by this malady, adults or children, some changes are produced in the height. In adults it diminishes before old age, even without the occurrence of the hump. In children the growth of the spine is arrested, and the height increases only by increase in the lower limbs and head. In the early stages of the disease the height diminishes. The growth of the posterior arch and the cuneiform flatten-

ing of the bodies only aggravate the gibbosity without elongating the vertical dimensions of the thorax. The child regains its powers of growth when the curve is reduced, and along with this comes a correction of the form of the thorax, and an improvement in the vital forces from the better condition under which the thoracic and abdominal viscera act.

The Use of the Catheter in Cases of Prostatic Disease.

Bangs (*Medical News*, February 12, 1898), in a paper on catheter life, with some remarks on the etiology of hypertrophy of the prostate gland, lays down some general directions on catheterism which should, it is held, be rigidly followed by the patient. The soft catheter with solid tip is the best to use, if possible. If a rigid one be required, one made of elastic webbing, with a curve or bend at the point, is preferable. A new catheter must be treated with the same care as to cleanliness and asepsis as one that has been in use. If possible, it should be exposed to the vapor of formaldehyde; if not, it should be immersed in a solution of formalin (1 to 2 per cent.) during at least fifteen minutes. Then it should be placed in a strip of bichloride gauze, or placed between the folds of a perfectly clean towel. Each catheter should be kept in a separate receptacle or closed drawer, where dust cannot find access to it, and where it cannot be handled except by the person who is to use it. If the patient must carry the instrument about with him, it should be kept wrapped in several layers of bichloride gauze, and outside this should be placed a wrapping of "waxed" or parchment paper, held firmly by rubber bands. Just before using the catheter the patient must thoroughly clean his hands, and rinse his fingers in pure alcohol. In the mean time the catheter should be lying in formalin solution. Then, after shaking it, and wiping off any drops that may remain upon it with a piece of clean gauze, and smearing it with a proper lubricant, the patient should gently pass it along the urethra. Immediately after use the catheter should be thoroughly washed with soap and water, be steeped for a time in the solution of formalin, and then carefully put away in gauze or clean towel in readiness for the next use.

THERAPEUTICS.

UNDER THE CHARGE OF

HORATIO C. WOOD, M.D., LL.D.,

AND

ARTHUR A. STEVENS, M.D.

Iodoform in the Treatment of Phthisis.

Russell (*Birmingham Medical Review*, June, 1898) compares the results obtained from the use of iodoform in 123 cases of phthisis with those obtained by the ordinary tonic plan of treatment in forty-eight cases. All received cod-liver oil. The patients were under observation from four to thirty weeks.

Eighty-eight patients took a maximum daily dose of from twenty-four to thirty grains *per diem*, and only five failed to reach a maximum of fifteen grains *per diem*. A comparison of the respective weights of the patients at the end of a period of from six to twelve weeks showed 8.9 per cent. more gains and 11.1 per cent. fewer losses among the iodoform cases than among those not so treated,—a decidedly better result. Out of eighteen patients who had attended for over ten weeks, 55.5 per cent. gained in weight, and only 27.8 per cent. lost; while all the patients, with two exceptions, who attended for more than twenty weeks—eight in number altogether—had gained in weight at the end of their period of attendance. In conclusion the author says that he believes that the foregoing investigation represents fairly what can be said in favor of iodoform. He is aware that it does not amount to very much, but, considering the conditions, he is of the opinion that in a certain number of cases better results can be obtained by its means than by the ordinary tonic and symptomatic line of treatment.

Suppository Doses for Children.

In the May number of *Pediatrics* is an article, abstracted from *Médecine moderne*, calling attention to the many advantages of rectal medication in children,—viz., lesser irritability of the rectum than that of the delicate digestive organs, emotional antagonism of the child, etc. Rectal absorption is perfect, but slower than that of stomach and intestines, whence the dose may be as large as that given by the mouth and gradually increased. If the drug is dissolved in the suppository its effect is attained gradually. The following are recommended as the maximum doses of certain potent remedies for children:

Opium.—Pulvis opii may be given in suppository in doses of one-sixty-sixth of a grain for each year of the child's age, and this dose may be repeated in severe cases every two hours. Toxic symptoms should be carefully watched for, and the use of the remedy discontinued on their appearance. These doses are small ones, and may be increased.

Aconite shows its action in children only in large doses. We must therefore administer it in repeated small doses to obtain its effect. For example, we may give one or two drops of the tincture for a suppository in a year-old child, and increase the dose up to ten or twelve drops in twenty-fours hours for each year of life.

Belladonna acts as an excellent sedative in cough, and exerts a very favorable influence on the muscle fibres of the intestine. We may use one-sixth of a minim of extract of belladonna in twenty-four hours, divided into three or four suppositories, for every two years of age.

Digitalis.—Powdered digitalis is with difficulty absorbed by the rectum. The tincture should therefore be used. The maximum dose for each year of life is four drops, divided into two suppositories.

Caffeine is usually injected subcutaneously. It may, however, be administered in a suppository with equal parts of benzoate of sodium. For example, one grain and a half to a suppository, using two daily for each year of the child's life.

Quinine is best given in suppositories. The daily maximum dose is two to three grains and a third, in two suppositories, for each year of life.

Antipyrin may be given in the same dose.

Salicylic Acid.—Seven grains and three-quarters for each year of life, in divided doses (three or four).

Nux Vomica.—One-sixth of a grain for every two years, in three suppositories.

Strychnine should be given only to children over ten years of age.

Mercury should only exceptionally be given *per rectum*, and then only in the form of calomel, three-quarters of a grain in a suppository, for each year of life.

Iodine and its preparations are exceptionally well borne by the rectum and fully absorbed, three grains for each year of life, in two suppositories, is the maximum dose; three-quarters of a grain if it is to be continued.

Bromides should be given in the same doses, except in severe spasms, when we may give fifteen grains, for each year of life, in two suppositories rapidly following each other; for example, in laryngismus stridulus.

Amyloform and Dextroform.

A NEW substitute for iodoform has recently (*Journal of the American Medical Association*, July 2, 1898) been prepared by Professor Classen, of Aix-la-Chapelle, which he names "amyloform," and which consists of a combination of formaldehyde with starch. It occurs as an almost impalpable white powder, devoid of all smell and insoluble in ordinary menstrua. In contact with the tissues of the living body, however, it breaks up, and when it was applied to extensive suppurating wounds formaldehyde could be detected in the purulent discharge. At the same time the urine was proved to be quite free from it by distillation with dilute sulphuric acid and the addition of fuming sulphurous acid, so that in whatever form formaldehyde enters the system it must be fully oxidized therein. However much amyloform is applied no toxic symptoms are produced, though a slight and transient smarting sensation is sometimes complained of locally. The clinical effect of the substance is very similar to that of iodoform, only it is frequently more pronounced. In a number of cases of deep wounds with suppuration of bone from osteomyelitis or tubercle, a quantity of the powder very liberally applied caused the suppuration to cease in a very short time, in some instances where iodoform had previously been tried without much result. In varicose ulcers of the leg and in the primary sore of syphilis amyloform also proved useful. The above clinical observations were made by Bongartz in the Mariahülf Hospital, Aix-la-Chapelle. It has been mentioned that amyloform is insoluble, but a very similar substance has been prepared from dextrin instead of starch, which Classen calls "dextroform," and this is dissolved without much difficulty by both water and glycerin. Its 5-, 10-, or even 20-per-cent. solution has proved very useful, as in injection in gonorrhea, and the former of these solutions has been employed with success for washing out the cavity of an empyema. Internally the solution has been prescribed with advantage in a case of cystitis.

OBSTETRICS.

UNDER THE CHARGE OF

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ASSISTED BY

W. A. NEWMAN DORLAND, M.D.

The Heart in Normal Pregnancy.

According to Vaquez and Millet (*Presse médicale*, February 2, 1898) cardiac hypertrophy does not result during pregnancy, notwithstanding the popular view to that effect. They examined thirty-one cases, and in seven only was there an increase in the area of cardiac dulness, this being due in each instance to a well-recognized cause. Temporary dilatation and arrhythmia may occur, however. In pre-existing cardiac disease normal pregnancy acts deleteriously, but the authors do not believe that the accidents occasionally noted during pregnancy are the result of myocarditis and fatty degeneration. The disturbance of the cardiac circulation is probably the cause of the exaggerated striation and nuclear swelling with atrophy and disintegration of the cells, and also of the capillary dilatation and apoplexy of the right-sided myocardium. These are probably produced by a disturbance of equilibrium between the intracardial and pulmonary circulations. In order to avoid cardiac troubles during pregnancy it is recommended that the patients take rest in bed and a milk diet, with only moderate exercise. An absolute milk diet is necessary only in case of renal or hepatic congestion, as shown by the symptoms. Digitalis must be exhibited when general symptoms of cardiac insufficiency appear. In case of marked disturbance of the pulmonary circulation, as in mitral stenosis, the treatment consists in absolute rest in bed, milk diet, hot thoracic applications, and theobromin or Dover's powder internally. Premature labor must be induced if the symptoms are severe after the sixth month and do not improve under four to six weeks' active treatment. In all patients suffering from cardiac lesions chloroform should be used during labor. Digitalis is not well borne in cases due to mitral stenosis. Should the pulmonary symptoms persist after labor hypodermic injections of morphine act beneficially. As to patients with cardiac lesions marrying, this may be permitted if the lesion is slight and does not produce symptoms. Cardiac insufficiency or the presence of marked mitral stenosis should contraindicate marriage.

Drainage after Normal Labor.

Lankford (*Richmond Journal of Practice*, March) recommends the following system of drainage after labor: Forty-eight hours after delivery the patient is allowed to sit up in a chair for half an hour; then she is placed in bed, and at the end of two hours she is allowed to sit up again, and so on until bedtime. The next day he allows the patient to sit up one hour out of every three. On the fifth day he allows the woman to sit up two hours and recline two.

The Formation of Syncytium in the Glands of the Uterine Mucosa in Extrauterine Pregnancy.

Schmidt (*Monatsschrift für Geburtshülfe und Gynäkologie*, Band vii, Heft 1) has carefully investigated a case of tubal pregnancy ending fatally in the sixth month, in which the uterine mucosa showed an undoubted syncytium in the glands of the spongy layer. This is unique, as syncytial transformation of the decidua uterina in extrauterine pregnancy has never before been observed. A possible explanation of this lies in the fact that investigations have hitherto mostly been made upon cases of an early period. Some observers believe the syncytial covering of the chorionic villi has its origin in the surface and glandular epithelium of the uterine mucosa, while others ascribe its origin to the fatal ectoderm.

Transverse Engagement of the Occiput.

Motta (*Archiv für Gynäkologie*, Band liv, Heft 3) reports eighty-three cases of transverse occipital presentation from the Dresden Maternity Hospital. He claims that this presentation is far from normal, and offers a most unfavorable prognosis for the child. The sagittal suture in these cases lies transversely in the pelvis, the posterior parietal bone lying above the pelvic inlet. The position is very common in contracted pelves, according to Litzmann, occurring in 10 per cent of these cases. Motta found, however, that in the eighty-three cases only two presented normal pelves. In twelve of the cases a spontaneous termination of the labor was noted, and in seventy-one of the cases some form of operative interference became necessary. Many of the operations were indicated by the degree of pelvic contraction as much as by the abnormal position of the head. Only thirty-four of the infants survived; the mothers were all relieved. There was noted an abnormal number of puerperal complications. As regards treatment the author recommends an expectant plan. The membranes should be preserved as long as possible, if need be, introducing a colpeurynter for this purpose.

PATHOLOGY.

UNDER THE CHARGE OF

JOHN GUITÉRAS, M.D.,

ASSISTED BY

DAVID RIESMAN, M.D.

Concerning Hypernephroma of the Kidney.

Aloysius O. J. Kelly (*Ziegler's Beiträge*, 1898, Band xxiii, Heft 2, p. 280) makes an important contribution to this mooted subject. After a preliminary review of the literature, which he commends fully, he describes first a so-called struma of the adrenal, which was a cherry-sized tumor, resembling suprarenal cortex, and contained numerous hemorrhages. Secondly, a malig-

nant tumor of the suprarenal gland,—a large growth showing in part cell-columns with traces of a lumen and multiple necrotic areas. The tumor-cells rested directly upon the blood-vessels. The growth had spread to neighboring parts and had given metastasis along the blood-vessels.

The first tumor represents a type of generally benign growths, springing usually from the cortex of the gland; they are in the majority of instances directly continuous with the gland tissue proper.

The third tumor is a hypernephroma [a hypernephroma, we may interpolate here, is a name given to tumors derived from suprarenal tissue, either of the gland itself or misplaced in the kidney or elsewhere. It is a term that takes account only of the histogenesis and is non-committal with respect to morphologic classification], found together with small cysts in an arteriosclerotic kidney. The cells showed fatty infiltration and were directly placed on the capillaries. The fourth, fifth, and sixth tumors are also hypernephromata, all three being malignant. The last two tumors described are a papillary and a tubular adenoma of the kidney. In the neighborhood of the former a small lipomatous hypernephroma was found. An interesting case of bilateral concrescence of adrenal and kidney is also discussed, and, finally, an apparently primary tumor of the kidney containing colloid, which latter feature led to the suspicion of a thyroid origin, and, indeed, in a piece of the thyroid gland accidentally conserved evidence of adenocarcinoma was found.

In his criticism of the various theories advanced in explication of the origin of the hypernephromata, which constituted four of the seven renal tumors observed among 3098 autopsies, the author ranges himself on the side of Grawitz and Lubarsch. In answer to the contention of Hildebrand that the cells never showed the serial arrangement found in the suprarenal, he very properly urges the necessity of comparing the tumors, not with the normal suprarenal gland, but with tumors developed from it. The rather striking similarity between certain tumors (endotheliomata) of bone and the so-called hypernephromata, which has by some writers been looked upon as confirming the endotheliomatous nature of the hypernephroma, is interpreted by the author as perhaps due to the bone-tumors, being in reality secondary to overlooked hypernephromata, which are often very small. Furthermore, benign suprarenal tumors do at times give metastasis.

A case is then cited of an endothelioma of the ilium with metastatic deposit in the kidney, which had at first been considered the primary growth,—a hypernephroma,—but microscopic examination showed the renal tumor to differ clearly from hypernephroid growths.

In conclusion the author considers the possible reasons of the preponderance of tumors of suprarenal rather than renal origin in the kidney.

Excellent plates accompany the article.

Appearance in the Blood-Serum, under the Influence of Chemical Products, of a Substance Capable of Agglutinating the Bacillus of Tuberculosis.

S. Arloing (Académie des Sciences, Séance du 31 mai, 1898, *La Semaine médicale*, June 8, 1898) was able to cause the appearance in the blood-serum of goats of a principle agglutinating tubercle bacilli by repeated injections of eucalyptol, guaiacol, creosote, or Mialhe's solution (corrosive sublimate). As

none of these substances has any agglutinating power outside of the body, it must be assumed that they produce in the body certain chemical substances of which they themselves are devoid.

Contribution to the Study of the Diseases of the Central Nervous System in the Acute Infections.

Eugene Fraenkel (*Zeitschrift für Hygiene und Infectionskrankheiten*, Vol. xxvii, Heft 3, 1898) makes an important contribution to this subject, and reports in detail two cases of influenza meningitis, one of pneumococcic and one of anthrax infection. The first case, a male child, 10 weeks old, was admitted with diarrhea and signs of bronchitis. There were no meningeal symptoms. At the autopsy lungs, heart, and abdominal organs were normal. A large quantity of pus was found beneath the dura and between the pia and the arachnoid. In places the arachnoid was torn and lay in shreds over the pus-covered cerebral cortex. The ventricles were somewhat dilated. The ependyma was smooth; the fluid contained a few purulent flocculi. The tympana were normal. Teased preparations of the brain presented, aside from a few granule cells, nothing remarkable, but in stained cover glass preparations from the meningeal pus an enormous number of delicate short rods, frequently intracellular, were found. Glycerin agar tubes inoculated with the pus remained sterile, while inoculations on blood agar gave small dew-drop-like colonies consisting of bacilli identical with those found in the pus. The bacteria did not stain by Gram's method, and were beyond a doubt influenza bacilli. Histologic study showed that the exudate occurred in the subarachnoid space and had separated the soft membranes widely. The venous vessels of the pia were engorged with blood, the arteries presented nothing abnormal. The tissues of the pia showed an increase in spindle-cells, and this was also true of the arachnoid. The exudate proper was very cellular. The brain cortex adjacent to the exudate showed nothing significant.

The second case, a male child, 9 months old, was received with signs of bronchitis and mucoid stools. Spasm of the extremities, strabismus, unequal pupils, vomiting, and convulsions set in. A diagnosis of tuberculous meningitis was made. At the autopsy it was found that on the convexity of the brain, between the soft membranes, there was a thick, yellow, partly fluid exudate, which in the region of the posterior right hemisphere attained the thickness of half a centimetre. There was also an exudate at the base, in the region of the pons and medulla. Pus was found in the tympanic cavities, the walls of which, however, were normal. The spinal cord was also covered posteriorly with a thick exudate. Inoculations were only successful on blood agar, and resulted in the growth of influenza bacilli. Microscopically, it was shown that the exudate was entirely between the pia and the arachnoid. The left lung at the apex and the posterior surface of the upper lobe were firmly adherent to the chest wall.

The first case was then one of purulent meningitis without other influenza focus in the body, and, in view of the preponderating involvement of the frontal lobes, the author assumes that the infection travelled up from the nasal chambers.

Attention is called to the peculiar condition of the arachnoid, which in places was torn and allowed the exudate to enter the subdural space. The dis-

ease processes occurred primarily between, not on, the membranes. For the demonstration of the bacteria in tissue the author employs Unna's polychrome methylene blue with differentiation in glycerin-ether; the best results were obtained by staining with polychrome methylene blue and after-treatment with tannin-orange or tannin-acid-fuchsin and glycerin-ether, equal parts. Bacilli were only found in the exudate, and bore no relation to the tissue of the membranes or the brain substance.

In the second case one might be inclined to look upon the middle-ear disease as the primary lesion, but the author rejects this: first, because in infants with pedatrophy purulent otitis media is an almost constant feature without there being any affection of the brain or membranes. Second, the otitis media of influenza is usually not purulent but hemorrhagic, and has a tendency early to penetrate the tympanic membrane. Since the child had bronchitis it is reasonable to assume that this was grippal in nature. Regarding the post-mortem diagnosis the author holds that it is not possible, either by macroscopic or simply microscopic study, to differentiate between a cerebro-spinal meningitis due to the diplococcus pneumonia, the diplococcus Jaeger-Weichselbaum, or the bacillus influenzæ. Only bacteriologic study will differentiate.

The third case, a boy a year and 9 months old, had empyema, for which resection of the rib was done and a third of a litre of pus removed. The child died. At the autopsy the right lung was found for the greater part adherent; over the free part there was some pus. Over the convexity of the right hemisphere there were hemorrhagic foci penetrating into the brain substance. Microscopically, the cellular exudate was here also between the soft membranes. The veins were filled to bursting with blood, and red corpuscles were also found in the adventitial lymph-paths. Some of the perivascular lymph-spaces were filled with diplococci of pneumonia. Interesting in this case was the absence of any clinical signs pointing to meningitis, and the author advises that in every case of pneumonia the brain be examined. Important also is the demonstration of the distribution of the bacteria,—they were distributed not along the blood-vessels but along the perivascular lymph-spaces.

The last case described by the author concerns a laborer in hides who developed anthrax. At the autopsy the leptomeninx was found edematous and diffusely dark red. The central convolutions were dotted over with small punctiform hemorrhages, which could also be traced into the white matter. Microscopically, a great deal of pigmentary deposit was found in the vicinity of the hemorrhages. An enormous number of anthrax bacilli were demonstrated by Weigert's method in the membranes, which were entirely free from fibrin. Nowhere were the bacteria in the lumina of blood-vessels, but only in their walls.

In the brain substance, in the region of the hemorrhages, bacilli were found also, but only in the vessel walls, not in their lumen. Inflammatory phenomena were entirely absent. In another case of anthrax, bacilli could be demonstrated in a brain that showed no macroscopic changes, and the author thinks that these latter only occur when the bacilli get into the blood-vessels and lead to changes in their walls. Of interest, too, is the difference between the effects of the localization of the pneumococcus and that of the anthrax bacillus. In the former true encephalitic phenomena are produced; in the latter only hemorrhages. This is evidently ascribable to a difference in the metabolic products of the respective micro-organisms.

BOOK NOTICES.

An American Text-Book of Genito-Urinary Diseases, Syphilis, and Diseases of the Skin. Edited by L. Bolton Bangs, M.D., and W. A. Hardaway, A.M., M.D. Philadelphia: W. B. Saunders, 1898.

In a volume of 1229 pages the editors have brought together a series of signed articles on the above-named diseases, written by prominent workers in this field.

The diseases of the genito-urinary tract and of the skin have reached such a high stage of development and importance that they have become separated from general medicine and from each other during the past ten or fifteen years; the advisability, therefore, of combining them in one volume can well be questioned.

The placing of vegetations or venereal warts among the complications of urethritis is confusing, and they would better be included in the preceding article on diseases of the penis.

The article on Diseases of the Male Urethra, particularly that portion relating to urethritis, would admit of much condensation without losing anything in value, the treatment of the acute form of this disease alone covering over fifteen full pages, and most of the many and various methods in use in this country. The writer is a strong advocate of the use of the endoscope as an aid in applying various caustic and resinous substances to the urethra in chronic urethritis; the utility of this instrument and the value of many of these drugs will be questioned in this country. The use of boric acid, either internally or as an irrigant, is but barely mentioned in acute cystitis arising from chronic urethritis, and the superheated air method in the treatment of gonorrheal rheumatism is entirely omitted.

The statement that frequent and vigorous erections are a cause of stricture during the course of a urethritis will not meet with the views of the most experienced men. The controversy over the classification and treatment of organic stricture is gone over *ad nauseam*, and the views and methods of Otis extensively quoted and in great part agreed to by the writer.

The section on Diseases of the Prostate is one of the most valuable in the book. It opens with a comprehensive description of the prostate and surrounding region, and is well and carefully illustrated, most of the cuts being original, and a few in colors.

The subject of enlarged prostate in the aged, always an important one and particularly so in the light of recent experience, is very fully considered. White's operation and the reasons therefor, together with the author's conservative views and well-known classification on this common and troublesome affliction being given in a simple, readable style, exhaustive without being verbose. Bearing in mind the important relation of the different methods of treatment to the grades of

the condition of enlarged prostate, as clearly exemplified in Dr. White's concise classification, it must be felt that the treatment of this hitherto intractable disease has passed the experimental stage. The article can be accepted as the most modern and accurate teaching on this subject at the present time.

The chapter on Diseases of the Bladder is well written and up to date, the treatment of cystitis and the portion relating to tumors of the bladder being particularly commendable.

The subject of vesical calculus is given a separate chapter of sixty pages, as befits its importance, and is carefully and exhaustively entered into by the writer, who gives a pithy and conservative summing up of the operative methods for the relief of this common condition, especially as regards litholapaxy, which will be concurred in by most genito-urinary surgeons.

Seven chapters by different writers are given to syphilis, and are profusely illustrated. The routine method of changing the internal administration of mercury after six weeks' use to mercurial inunctions and later changing back again, will meet with the approval of many syphilographers. The prognosis is not as definitely stated as might be wished.

One-third of the book is given up to a large number of articles by different well-known writers on Diseases of the Skin, which field is well and carefully covered, and in general may be accepted as the most modern teaching on this interesting subject.

Generally speaking, the work represents the views that are accepted by the large majority of surgeons and specialists in this field of work in the United States.

The volume is well and profusely illustrated, many of the cuts being original, and showing careful work and selection; the typographical errors are less numerous than is common in works of this size and character: and the binding and typography are in keeping with the publisher's previous works in the same series.

Elements of Clinical Diagnosis. By Professor Dr. G. Klemperer, Professor of Medicine at the University of Berlin. First American edition from the seventh (last) German edition, with sixty-one illustrations. Authorized translation, by Nathan E. Brill, A.M., M.D., and Samuel M. Brickner, A.M., M.D. New York: The Macmillan Company, 1898.

The English-reading public is fortunate in having such an excellent translation of a work that has already passed through seven editions since its first appearance in Germany, in 1890. It comprises the scheme for the examination of the patient which has long been employed at the Charité in Berlin, and thirteen chapters devoted to the anamnesis and general condition, the diagnosis of the acute febrile and acute infectious diseases, diseases of the nervous system, diseases of the digestive system, diseases of the respiratory tract, diseases of the circulatory system, examination of the urine, diseases of

the kidney, disorders of metabolism, diseases of the blood, animal and vegetable parasites, and the Röntgen rays as diagnostic aids. The facts are clearly and concisely stated, and the methods of diagnosis recommended are thoroughly up to date. We know of no other book of similar size (300 pages) which contains so much accurate information on the subject.

Pictorial Atlas of Skin-Diseases and Syphilitic Affections, in photo-lithochromes from models in the Museum of the Saint Louis Hospital, Paris. By Besnier, Fournier, Tenneson, Hallopeau, Du Castel, Feulard, and Jacquet. Edited by J. J. Pringle. Parts X and XII. London (Rebman Publishing Company) and Philadelphia: W. B. Saunders, 1898.

We have repeatedly noticed with favor in the Magazine the earlier parts of this valuable and handsome work as they have been issued. The parts before us conclude the publication, and we congratulate the talented authors and the editor upon so successful a completion of their labors. The drawing and coloring of the plates, and the text, are excellent, and we can cordially commend the Atlas to all interested in diseases of the skin. The enterprising American publisher deserves the thanks of the profession in this country for having placed this important and useful work within their easy reach.

An Epitome of the History of Medicine. By Roswell Park, A.M., M.D., Professor of Surgery of the Medical Department of the University of Buffalo, etc. Illustrated with Portraits and other Engravings. One volume, royal 8vo. Philadelphia, New York, and Chicago: The F. A. Davis Company.

Dr. Park has succeeded in this work in bringing within a comparatively small compass a vast number of interesting facts that should prove valuable to every practitioner. Medical history is a department of learning which has been sadly neglected. Very few of those engaged in the practice of the art and science of medicine for a livelihood have but the flimsiest knowledge of the origin and course of the currents out of which have grown the principles of modern medical teaching, and yet, as the author says, "the history of medicine is really a history of human error and of human discovery."

Apart from a few slight errors in dates, and an unnecessary abruptness in passing from one epoch to another, there is nothing in the book that is not commendable. The text is interspersed with excellent illustrations, many of which are portraits of noted medical men.

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SEPTEMBER, 1898.

IMPLANTATION OF SPONGE IN THE ORBIT AFTER ENUCLEATION. A PRELIMINARY STATEMENT.[1]

By S. D. Risley, M.D.,

PHILADELPHIA,

Attending Surgeon, Wills Eye Hospital; Professor of Diseases of the Eye, Philadelphia Polyclinic and College for Graduates in Medicine.

The following is a preliminary statement of the results following the implantation of a mass of sponge into the orbit after the enucleation of a shrunken eyeball. A fragment of surgeon's sponge, carefully sterilized, was pared down to a size just sufficient to fill loosely the cavity left by the removal of the ball, and to permit the suturing of the conjunctiva and subconjunctival tissue over it without undue tension. The sponge was inserted after all hemorrhage had ceased and the blood clots removed, and five black sutures, deeply placed, drew the conjunctiva and the underlying tissues together, entirely concealing it. The design was to furnish a framework for the deposition of connective tissue in the orbit, and thus avoid the concave socket which follows enucleation, and always permits the accumulation of tears and mucus behind the artificial eye. After the operation was completed the closed lids presented none of the sinking into the orbit usual after excision of the globe, the appearance being much the same as that presented after the insertion of a glass globe in the sclera, as in the Mules operation.

The eye was dressed as after an ordinary enucleation. The operation was followed by no reaction, pain or swelling of the lids or tissues in the orbit. There was no discharge, and the conjunctiva covering

[1] Read before the American Ophthalmological Society, July, 1898.

the sponge presented a uniform red appearance. The sutures were removed on the fifth day. On the eighth day the conjunctival wound had opened, leaving a horizontally oval window into which the sponge mass protruded. There was no pain and no discharge from the conjunctiva, but the surface of the sponge was covered by a homogeneous yellowish-white, tenacious layer, which could be wiped away in stringy masses. The sponge, on pressure, exerted through the lids, exuded from its interstices an abundance of a lymph-like exudate. The lids were closed and a protective bandage reapplied. On the tenth day the sponge mass was still more prominent and was bathed in the exudate. The patient was entirely comfortable, and there was no inflammatory reaction. He was then placed upon the operating table and the most protuberant part of the sponge shaved off with scissors. When seized with forceps it was found soft and friable, easily breaking down under the grasp of the forceps, indeed presenting none of the characteristics of the original sponge other than its cell-like structure and color, and the cells were found filled with exudate which exuded under pressure. After cutting the surface a slight salmon-colored staining was observed creeping in from the periphery, evidently from severed blood-vessels which were being projected from the surrounding tissues into the sponge mass. It was everywhere firmly adherent to the surrounding tissues and could not have been removed without complete dissection. Two weeks after insertion the sponge presented a uniform homogeneous surface, yellowish white, and tongues of granulation masses were seen projecting into its surface from the surrounding conjunctiva. The extraocular muscles move the mass freely in all directions.

Three weeks after its insertion the same yellowish-white appearance continues, but the entire mass is smaller, and tongues of abundant granulations are penetrating it from all sides, which bleed freely when punctured. The patient returned to his home at the end of the second week. He has had no discomfort at any time. The final result I shall hope to present in a subsequent communication. This preliminary statement is made not because sponge-grafting is new, but to call the attention of the society to its possible value after enucleation. So far as I know, the first work in this direction was done by Dr. D. H. Hamilton, and his results, with a careful study of the histology, published in a most interesting and elaborate paper in the *Edinburgh Medical Journal* for November, 1881, Vol. xxviii, Part I, and later in the same publication by Norman Porritt. These experimental cases, however, were in general surgical cases. Dr. Belt, of Washington, was the first, I think, to insert a sponge into the orbit after enucleation, and published five cases in the *Medical News* for June, 1896. He speaks

favorably of his results and commends the operation. Dr. A. G. Thomson, of Philadelphia, reported in the *Medical News*, April 13, 1895, a case of accidental sponge-grafting of the conjunctiva.

The principal objection to its employment in the orbit is the length of time—two to three months—required to complete the process of absorption of the sponge and its replacement by connective tissue. If the final result shall prove desirable, however, this objection loses much of its force, since the patient has no trouble during this interval, and can be allowed to pursue his ordinary vocation.

NOTE.—On August 23, the sponge has entirely disappeared, the last remnants in the shape of granules soft and friable, being wiped away with a cotton brush from a small central pocket. The orbit is well filled with a firm mass of tissue, covered with conjunctivæ, which moves with great freedom in all directions, furnishing an excellent base for an artificial eye. The result in this respect is very much better than is usually seen after ordinary enucleation. S. D. R.

BRIEF NOTES ON THE PRACTICAL ANATOMY OF THE SHOULDER.

BY THOMAS H. MANLEY, M.D.,

NEW YORK,

Professor of Surgery, New York School of Clinical Medicine.

THE writer has been led to undertake a brief study on the above subject, chiefly for the reason that the anatomy of those parts, as set forth in most text-books and works on surgery, is in many essentials misleading, unsatisfactory, and indefinite; nor can one find in any published work a full and accurate description of the structures within the shoulder-girdle, or those structures contiguous to, or in juxtaposition with, it.

At the present time, when the remarkable advances in the science and art of surgery have permitted the inclusion of every structure in the complex mechanism of the shoulder within the domain of radical surgery, in order to take proper advantage of this, something more than a general knowledge is imperative, where precision and accuracy are required. Until the Listerian epoch few, if any, operations, except disarticulation or amputation at the humero-scapular joint, were essayed. But now, that precision in diagnosis, painless operating, and freedom from the dangers of infection are possible, and since our knowledge of osteoplastic procedures has been greatly extended, the shoulder is one of those exposed regions of the trunk, to come within the range of aggressive surgery for the relief or cure of many lesions

or diseased conditions, which in the near past were regarded as hopelessly incurable.

Mode of acquiring Special or Practical Anatomy.—We acquire a knowledge of practical anatomy of a region in various ways,—

(1) By the aid of treatises on anatomy. This affords us but a relative and indefinite knowledge, because many illustrations are defective, because different authors give different names to the same structure, and, finally, because deviations in development are found in nearly every subject.

(2) Dissection on the cadaver—dead anatomy—is the most valuable of all methods in the study of anatomy.

(3) The study of the living anatomy is something too much neglected, but of great value. In muscular subjects, devoid of much fat, muscular movements at the shoulder may be studied with advantage.

(4) A study of comparative anatomy, combined with dissection of the lower animals. No one can pretend to a general knowledge of anatomy who has not given some attention to this side of the subject.

(5) By vivisection only can we learn physiological anatomy. This is of inestimable value, if for no other purpose than acquainting ourselves with the mechanism of the parts in motion. Surgical operations are a species of vivisection, and hence, the oftener the surgeon operates the better practical anatomist he becomes.

All of the above is germane to our subject, for, everything else considered, the more thorough anatomist the surgeon is, the more valuable his opinion and successful his treatment of shoulder or other lesions will be.

Physiological Anatomy of the Shoulder.—The shoulders in man hang suspended from the spine. They afford shelter and protection to the viscera of the upper areas of the thorax; defend the cranium, spine, and chest against injury, and are concerned in prehension.

A striking peculiarity here is the triple arrangement, the vicarious function of various structures, and atypical construction,—three special and definite characteristics.

Thus, there are three bones in the skeleton of the shoulder, three joints, three large superficial muscles, each with three separate heads or origins for the superficial layer; there are three large nerve-cords in the brachial plexus, below the clavicle.

The central segment of the deltoid muscle is rich in fibrous tissue, as is the brachial plexus, and hence both serve as auxiliary ligaments.

All the joints are singularly atypical; the costo-scapular, possessing neither synovial membrane nor ligaments; the humero-scapular, being without independent ligamentous support, and the clavicular scapula, having no muscular investment.

The shoulder is so placed and so constructed as to afford great resistance to violence to the upper part of the trunk; a mobile, osseo-muscular structure, it is well calculated to sustain the impact of great violence and deflect it with comparative impunity.

The marked and complex mobility of the shoulder is a most salutary provision against serious injuries.

When time or warning permits, in an instant the shoulder on one side, or both, is instantly fixed in such an attitude as to best divert the impending shock from the body. It is, therefore, a powerful movable shield.

The Shoulder Skeleton.—The scapula or omoplate serves for the insertion of those muscles which move it, and secures a fixed fulcrum for the leverage of the humerus. Its neck and apophyses are quite exclusively concerned in providing lodgement for the head of the humerus, and giving origin to those muscles which act on it.

The clavicle or collar-bone presses the scapula away from the central plane of the body, and contributes to the square outline of the shoulder. It therefore serves the purpose of a horizontal prop, but in no manner contributes to strength or motion, as it is wanting in those quadrupeds of the greatest power and agility, and, moreover, it has been lately demonstrated that its excision but slightly, if in any degree, impairs shoulder-action.

The humerus, by its greater tuberosity or *outer head*, imparts a fulness and rotundity, continuous with the sloping ridge of the acromion process. The large humeral head, the *inner* or *articular*, has but a narrow, nearly flat surface to move on; yet, its indirect osseous cavity is spacious, and hence the head of this bone is more deeply lodged than that of any other shaft in the body.

The articular head of the humerus, in the erect attitude of the body, is inclined inward and forward, and has a very wide range of action.

Three points of great practical importance should be carefully noted in the above,—viz., that there is *no* shoulder-joint, but shoulder-*joints;* that there are *two* heads at the scapular extremity of the humerus, the *external*, the greater tuberosity, being susceptible to palpation, the true articular head being always deeply concealed; and that the clavicle is not essential to full functional strength of the shoulder.

Muscular Structures of the Shoulder.—The muscles of the shoulder, in the outer layer, are large, powerful, and complex structures. For the costo-scapular and humero-scapular articulations they serve as ligaments. Thus we find in the thick fasciculi of the trapezius and acromion segments of the deltoid, an abundant intermixture of round and broad cords with fine ribbons of dense fibrous tissue. The muscles here serve

the triple purpose of *support, protection,* and *motion.* Hence we find the great pectoral, the dense trapezius, and ponderous deltoid first providing shelter to the underlying parts; one of these chiefly supporting the whole shoulder from the spine; the other holding the humerus securely up against the glenoid hollow; and the third providing shelter to the axilla. A complex muscular adjustment provides here a wide range of motion.

In fat or very muscular subjects all the osseous projections or outlines are quite concealed from view, and are located only indistinctly by palpation.

The most powerful, complex in structure, action, and surgical importance of all the shoulder muscles is the *deltoid,* or mantle muscle. All the others acting on the humerus are tributary and subsidiary to it.

Next in importance at the humero-scapular articulation is the triceps, the basal muscle of this joint. The subscapularis ranks a good third, in point of importance in luxations, at this site.

The infra- and supraspinatus, with the teres minor, aid in adjustment and rotation, but are of minor importance. The long head or tendon of the biceps plays an auxiliary part in limiting the advance forward of the humeral articular head; but, like the short head of the same muscle and the coraco-brachialis, its main purpose is either directly or indirectly to maintain a steady traction upward on the humerus.

The pectoralis major occupies an intermediate or somewhat doubtful position as an active factor in humero-scapular dislocations. From the origin, arrangement, and insertion of this muscle, we note that it tends to powerfully draw the shoulder forward; it flexes, rotates, and adducts the arm. It is the great shelter muscle of the axillary hollow.

Ligaments of the Shoulder.—The outer third of the clavicle—the acromion head—is maintained in position chiefly by ligaments. The acromio-clavicular and coraco-clavicular ligaments contribute towards the formation of the acromio-coracoid arch, against which the outer head of the humerus plays in inward rotation of the humerus. The costo-coracoid with the lesser pectoral muscle tends to steady the scapula forward. Some authors on anatomy describe various thick, fibrous bands of the capsular sheath at the humero-scapular joint as ligaments, while others regard it of a fairly uniform thickness. This structure is very strong, quite capacious, and elastic. Sometimes the capsule at the humero-scapular articulation is divided by a meniscus into two compartments. This is quite invariable at the acromio-scapular junction.

The Nerves of the Shoulder.—The principal nerve-supply of the shoulder is from the cervical and brachial plexus. The brachial plexus

is of great surgical interest, not only from the aspect of its divisions in their relations to important structures, but because of the contributory support which they provide to the inner aspect of the shoulder. The three large nerve-cords in the third stage of this plexus have a considerable proportion of fibrous tissue in their sheaths and their interfascicular septa; they are of remarkable tensile strength, and must be regarded as important auxiliary ligaments in supporting the anterior segment of the shoulder. Tillaux found, on experiment, that each cord was capable of maintaining about thirty-eight kilogrammes weight,—about 100 pounds.

The subscapular, the circumflex, and the musculo-spiral nerves are all roots from the posterior cord of the brachial plexus.

The subscapular and circumflex are of the greatest surgical importance, because of their exposed position in various dislocations, and because they supply the greater part of the humero-scapular joint, the deltoid, the subscapularis muscle, part of the latissimus dorsi, the two tereses, and greater area of the integument over the shoulder projection and the upper third of the arm.

In complete humero-scapular dislocation forward it is quite impossible for the branches of the complex nerves to escape damage, lying, as they do, in that quadrilateral space, through which the humeral head must traverse, when it advances forward across the coracoid arch, unless it presses the tendon of the subscapularis before it. The musculo-spiral, the largest branch given off from the branchial plexus, is so placed as to quite entirely escape injury in any type of humero-scapular dislocation.

The suprascapular nerves, three in number, pass down from above the clavicle. They are off-shoots of the brachial plexus above the clavicle, and are so lodged as to escape the effect of violence in the greater number of shoulder injuries. They supply the subscapularis, the teres major, and latissimus dorsi.

The Vascular Supply.—The shoulder may be said to derive practically its entire vascular supply from branches of the subclavian and axillary arteries. The axillary space, through which the main blood-trunks and nerve-cords pass, is large and lax, richly supplied with adipose, myxomatous, and lymphoid tissues, hence why a considerable degree of displacement or distention of these blood-vessels is permitted with impunity. Nowhere in the body do such large blood-trunks lie so near the surface as in the lower third of the axillary space, where they are covered only by a very thin integument and fascia. But they are very movable and stand off considerable distance from the humero-scapular joint at every point, only approaching the humerus closely when the subscapularis muscle is cleared.

The fixed branches of the first and second parts of the axillary artery are exposed in many shoulder injuries, and the subclavian is liable to compression in clavicular fracture of the outer third.

Synovial Pouches or Bursæ.—Extending from the summit of the glenoid fossa outward to the upper ridge of the anatomical neck of the humerus is a broad, deep synovial sac, usually designated the "subacromion bursa." It is evidently formed by a reduplication of the superior wall of the capsule, although its upper reflexion is firmly adherent to the inferior surface of the acromion process. By injecting this pouch with carmine water, I was only able to force the fluid into the cavity of the capsule in 10 per cent. of the cadavers experimented on.

When the arm hangs along the vertical axis of the body, the outer margin of the subacromion pouch extends about two lines beyond the border of the acromion process. It is highly elastic, and permits of considerable distention without rupture in subluxation of the humeral head. The purpose of this bursa is apparently to diminish the effects of concussion when the arm encounters great resistance and the articular head of the humerus is driven with great force upward or backward.

Beneath the broad tendon of the subscapular muscle and extending under the coracoid process forward is another large pouch-like sac.

This diverticulum is so lodged as to diminish friction when the humeral head is forcibly rotated outward and the tendon of the subscapularis is put on a strain; besides, when the head is rotated inward, it is so mobile and extensive as to interpose itself between the inferior surface of the coracoid process and the greater humeral apophyses, and hence it serves an important physiological purpose. Injection fluid in every instance, in my hands, passed freely from this pouch to interior of the humeral capsule. In my experiments on the cadaver it was found that these gauze-like sacs were capable of very considerable distention, alteration in shape, and relative position.

When the acromion and the clavicular divisions of the deltoid were divided and the humeral head left its fixed position, it was found that the subacromion bursa could be so distended with fluid as to offer a positive mechanical impediment to anything like complete reduction.

From this experiment of inducing mechanical effusion, it is reasonable to believe that after various types of subluxation at the humero-scapular joint such acute bursitis with large effusion may result as to constitute a positive obstacle to reduction, until the inflammatory elements have undergone resorption. Possibly, in some instances, during violent efforts to return the displaced head, the distended inflamed bursa may rupture, but this did not occur on the cadaver experimentally.

The Humero-Scapular Joint.—This articulation presents several remarkable features in its anatomical construction.

(1) In being an articulation of great strength, and yet having almost no articular surface for the humeral head to play on.

(2) While the head of the humerus comes directly in contact with only a narrow, nearly flat, osseous surface, yet above and posteriorly it is well sheltered and powerfully protected by the broad, osseous plate of the acromion process.

(3) The capsule is remarkable for its looseness, elasticity, capacity, and toughness. It receives many auxiliaries of dense fibrous structure from the tendon of the subscapularis, the teres minor, and the dense aponeurotic development over the acromion process.

(4) So wide a range of action is permitted the humeral head that without the acromio-coracoid arch and the coracoid process the tendency to anterior displacements would be greatly augmented.

(5) The articular head of the humerus is maintained in complete position by a single muscle and no accessory aids, as ligaments, atmospheric pressure, or peculiar joint-construction.

The Acromio-Clavicular Joint.—This articulation is an integral component of the shoulder mechanism, though not indispensable to its functional use, and hence, probably, why it is generally so briefly considered by authors on anatomy.

Like the humero-scapular joint, it anatomically is atypical. The head of the clavicle plays on a flat osseous surface. A distinct meniscus divides the capsule, and the articulation is entirely ligamentous. This joint derives much support from the dense aponeurotic expansion which extends over the acromion process and blends with the trapezius and deltoid. Its position is further secured by the subclavian, the pectoralis major, and deltoid muscles. This articulation permits such a range of motion that the whole shoulder may be carried towards or from the central plane of the body without any change occurring in the vertical axis of the humero-scapular joint.

The most remarkable features associated with or which follow dislocation at this articulation are (1) that they are liable to be overlooked, or difficult to detect in fleshy subjects; (2) they are generally irreducible; and (3) if irreducible, they seldom very seriously impair function.

The preceding brief and incomplete notes, on the construction of the shoulder, at least, suggest the importance of having something, at least, like a rudimentary knowledge of the anatomy of a joint or region before we undertake to deal with its lesions.

Not long since I was requested to open the wrist-joint of an intelligent patient who suspected tuberculosis. Although diagnosis was

doubtful, he pressed for an arthrotomy, "as the joint is so superficial and accessible;" but he was amazed when I pointed out that of all the articulations of the extremities that this one is the most deeply lodged and difficult to open without the division of important parts. And so it is with other regions, the shoulder, for example, when one speaks of the "shoulder-joint," as though there were but one joint at the shoulder. When we study the structures and mechanism of the humero-scapular joint, it at once becomes apparent that, though by an arthrotomy we may reduce any dislocation, the damage to the deltoid, which must be divided, may leave a condition much worse than a pseudoarthrosis. Comparative anatomy teaches us that the clavicle may be entirely sacrificed without serious loss of function, and we can easily understand how the greater part of the scapula may be removed for diseased conditions without any very serious impairment in brachial action.

Much has been written about the difficulty of recognizing dislocations at the shoulder; but this controversy can only be settled by an appeal to physiological anatomy; when we must recognize that there is such a state as *physiological* dislocation, and such a condition as *incomplete* dislocation, when the articular head of the humerus has separated from the glenoid fossa, *partly*, but it is yet *within the capsule*. Strictly speaking, the articular head is somewhat *displaced*, but there is no true dislocation.

It is time, in the interest of science, that anatomists and surgical teachers explain what they mean by the "head" of the humerus. Which head? The *external* head or trochanter, being superficial, while the *articular* or *internal*, the true head, is everywhere quite impossible to detect by palpation.

These few and many other anatomical points must be now fully and definitely elucidated by anatomists before anything like a precise knowledge of those disorganizations involving the shoulder is possible.

The Removal of Wax from the Ear.

The *Union médicale du Canada*, for January, states that Alberto Ricci, of Turin, has ascertained that the solution of hydrogen dioxide possesses the peculiar quality of rapidly disintegrating the obstructive masses of cerumen in the ear. It suffices to pour into the meatus auditorius externus a small quantity of the solution, and leave it for a few minutes in contact with the ceruminous plug. The latter is then most easily and safely removed by syringing with water, even though it were a hard concretion.

THE EFFICIENCY OF THE FORMALDEHYDE GENERATORS, WITH REMARKS UPON THEIR USE.

By Joseph McFarland, M.D.,

PHILADELPHIA,

Professor of Pathology and Bacteriology, Medico-Chirurgical College.

In the autumn of 1897, in conjunction with Professor George E. Meeker, of the Medico-Chirurgical College, I began a study of the comparative value of the popular "formaldehyde generators," in order to be able to authoritatively recommend one or other of them as the best.

The scope of the original research was to estimate the amount of available formaldehyde in the liquid and solid preparations ordinarily used,—formalin, formochloral, formaldehyde, paraform, etc.; the amount of the gas discharged by the apparatus under observation, the amount of gas present in a given volume of the atmosphere of the room after the apparatus had been operated, and the disinfecting power of the gas.

Unfortunately, an assistant to whom part of the work was intrusted proved faithless, and the records of the somewhat extensive chemical researches have been lost. The increased demands of his department, whose scope has been much widened of late, prevented Professor Meeker from again taking up the work, and only my experiments upon the disinfecting ability of the apparatus are in a condition to be published.

Disappointment at the failure of the original project would keep me from making this report, had not I promised the different firms, who kindly went to considerable expense to send and lend us their apparatus, that the results of my disinfection experiments would be made public.

That formaldehyde gas is an excellent disinfectant there is now no plausible reason to doubt. Much work has been done by able men, and all have united in praising it as an efficient germicide, which has the marked advantage over all other disinfectants that it is entirely without destructive activities upon furniture and ornaments.

The only important consideration to be observed is that an apparatus be employed whose ability to *discharge a sufficient amount of the gas* cannot be doubted.

As all manufacturers and dealers declare their apparatus thor-

oughly reliable, it remained for a series of experiments to be conducted in order to determine their efficiency. This problem was the starting-point of the present experiments.

All of the experiments were conducted in rooms that had originally been bedrooms in a private house. The cracks of the closed windows and doors were carefully pasted up with newspaper and flour-paste after the exposures were ready, and the gas discharged through the key-hole, except in the case of the Schering apparatus, which was ignited in the room before leaving it. The apparatus employed were three,—the "Trillat autoclave" (Fries Bros. & Co.), the Sanitary Construction Company's "formaldehyde regenerator" (H. K. Mulford Co.), and the Schering "formalin disinfector" (Schering & Glatz). Others were withdrawn by their supporters as likely to fail to meet the requirements.

The apparatus vary immensely in price, the first costing in the neighborhood of $100.00, the second about $25.00, and the last only about $3.50. They seem to be different in their durability, and the reagents employed for the production of the gas vary considerably in cost.

(1) The "Trillat autoclave." This apparatus consists of a heavy silver-lined copper cylinder, into which a solution—formochloral—is placed. A heavy, close-fitting lid is then screwed into place, and a Swedish lamp applied to the bottom. A gauge upon the surface is carefully watched, and from time to time a thermometer inspected. As soon as the temperature reaches 135° C. (?) and the pressure is three atmospheres a valve is opened, and the volatilized contents discharged, in the form of a moist vapor, through a fine tube that can conveniently be introduced through a key-hole or other small aperture into the room to be disinfected. It requires at least an hour to volatilize one litre of the fluid, the escape of the contents being indicated by the return of the pressure to normal. A syrupy residuum remained after use.

The apparatus is expensive, very heavy, somewhat complicated, formidable in appearance, but said to be thorough in operation, perfectly harmless, and durable.

It is said to discharge the formaldehyde in the form of a "dry vapor," but in the second experiment a condenser was introduced between the discharge-tube and the room, and one-half of the entire fluid collected by condensation. In this case the gas that entered the room was much drier than usual, and, in consequence, apparently considerably less active.

The following three experiments were made with this apparatus.

FORMALDEHYDE GENERATING APPARATUS.

Experiment I.—Trillat apparatus. Room 2030 cubic feet capacity; temperature 75° F. One litre of formochloral (Fries) used. Exposure six hours. Two series of cultures were exposed to the gas.

The interrogation-point indicates that when the sand, muslin, etc., were transferred to bouillon, the medium clouded a little, and in it the bacteria were found on microscopic examination. The number of

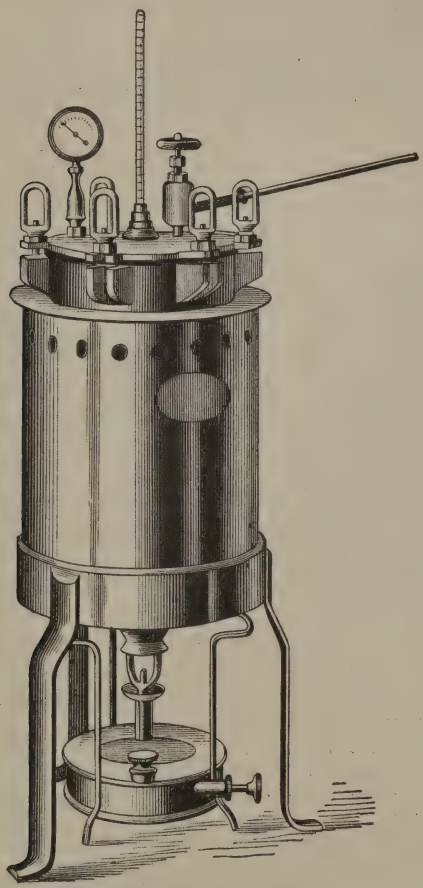

FIG. 1.—The Trillat autoclave.

organisms found was so slight, however, that there was some uncertainty as to whether they were present in numbers greater than might have been washed out of the exposed material.

This experiment indicates that the reagent is a good disinfectant, and shows the interesting fact that it is harder to kill bacteria dried upon glass than exposed in any other way.

A. Series of Dry Objects.

	Anthrax.	Diphtheria.	Typhoid.	Cholera.	Streptococcus.
The bacteria dried upon					
Sand	o	o	+	+	+
Glass	++	++	++	o	o
Paper	o	o	o	o	o
Muslin	o	o	o	o	o
Flannel	o	o	o	o	o
Flannel wrapped in flannel	o	o	o	o	o
Paper enclosed in envelopes	o	o	o	o	o

B. Moist Series.—The bouillon made to saturate the fabrics just before exposure.

Sand	o	o	+?	o	?
Muslin	o	o	+?	o	+?
Flannel	o	o	o	o	o

Experiment II.—Trillat apparatus. Room 2030 cubic feet capacity; temperature 70+° F. Two litres of the solution were used, but an attempt was made to dry the gas so as to permit the vapor to come in contact with the culture in a very dry condition only. This was accomplished by passing the gas through a condenser. The condensed vapor amounted to 1020 cubic centimetres and smelled strongly of formaldehyde. Formochloral was the liquid used.

After all the gas was driven into the room, air was withdrawn from its central part and made to pass through a Novy jar, in which exposures of cultures, similar to those in the room, were made. The cultures were exposed to the gas for twenty-four hours from the time the gas commenced to enter.

Series in the Room.

	Anthrax.	Diphtheria.	Cholera.	Typhoid.
Dried on glass	++	+	o	++
" paper	++	+	+	++
" muslin	++	o	+	++
" flannel	++	o	+	++

Series in the Novy Jar.

Dried on glass	++	o	o	o
" paper	++	o	o	o
" muslin	++	o	o	o
" flannel	. . .	. . .	. . .	. . .

Note.—The cultures in the Novy jar were all found to be moist when the jar was opened, no doubt from the remnants of the disinfect-

ing solution used to clean the jar. After washing the jar had not been dried.

This experiment seems to indicate that the action of dry formaldehyde vapor is far less efficient than that of the moist gas.

Experiment III.—Trillat apparatus. Room 2030 cubic feet capacity; temperature 79+° F. Two litres of formochloral used for the experiment. Exposure twenty-four hours.

	Anthrax.	Diphtheria.	Cholera.	Typhoid.
Cultures dried on glass	+	+	+	o
" " paper	o	o	o	o
" " muslin	o	o	o	o
" " flannel	o	o	o	o

This experiment certainly shows that the bacteria are most difficulty to kill when dried upon glass. It also shows that the resistance is so much increased by this condition that twice the amount of gas necessary to kill the bacteria ordinarily exposed will not affect them. The result of the use of two litres is no better in this case than the use of one litre in the first experiment. It further confirms the teaching of Experiment II that moist gas is more efficient than the dry.

(2) The Sanitary Construction Company's formaldehyde "regenerator." The principle upon which this apparatus operates is different from the autoclave, and makes unnecessary the heavy and formidable-looking pressure cylinder. A copper tube passing from the reservoir to the exit-tube is heated white-hot by means of a Swedish lamp, after which a stopcock is opened and a solution of formaldehyde, supplied for the purpose, is allowed to pass through. The sudden volatilization of the liquid, as it passes through the heated tube, sets free the formaldehyde. The apparatus is of moderate price, and is furnished with a maker's guarantee, which seems fortunate, as it is very liable to get out of order. The chief difficulty being the polymerization of the formaldehyde in the tube and its obstruction by paraformaldehyde, rendering the apparatus temporarily useless.

The discharged vapor is saturated with water, and deposits a considerable quantity of grayish powder at times, so that it should not be used without protracting the part of the carpet immediately beneath the discharge-tube with oil-cloth or waxed paper. The discharge-tube may be introduced through the key-hole of the room to be disinfected.

Formaldehyde Generating Apparatus.

Experiment IV.—Sanitary Construction Company's apparatus. (H. K. Mulford Co.). Room 2030 cubic feet capacity; temperature

70+° F. One litre of formaldehyde (Mulford's) used. Room kept closed for twenty-four hours afterwards. When opened, was full of formaldehyde vapor.

	Anthrax.	Diphtheria.	Cholera.	Typhoid.
Cultures exposed dried on glass	0	0	0	0
" " " paper	0	0	0	0
" " " muslin	0	0	0	0
" " " flannel	0	0	0	0

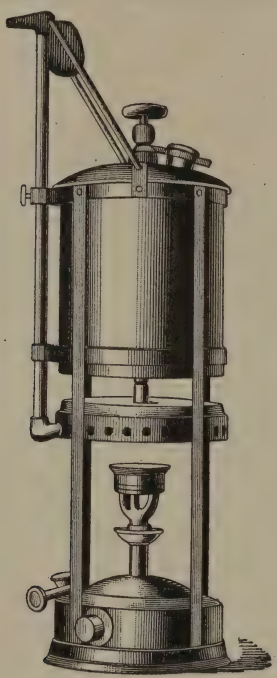

FIG. 2.—The Sanitary Construction Company's formaldehyde regenerator.

This was the most successful experiment thus far made. The gas was very moist and appeared like steam as it escaped. It seemed to be heavily loaded with paraformaldehyde, of which quite a collection in the form of grayish-white powder was found on the floor of the room, through the key-hole of which its pipe was introduced.

Unfortunately, the apparatus was useless after this one experiment, because of the obstruction of the copper coil by paraformaldehyde.

FORMALDEHYDE APPARATUS.

Experiment V.—Sanitary Construction Company's apparatus. Room of 1100+ cubic feet capacity; temperature 70+° F. Used one

litre of Mulford's formaldehyde. Exposure about twenty-four hours. The evaporation of the fluid required two hours. Room smelled very strongly of formaldehyde when opened.

	Anthrax.	Diphtheria.	Typhoid.	Cholera.
Cultures exposed dried on glass	0	0	0	0
" " " paper	0	0	0	0 mould.
" " " muslin	0	0	0 mould.	0
" " " flannel	0	0	0	0

FORMALDEHYDE GENERATING APPARATUS.

Experiment VI.—Sanitary Construction Company's apparatus. Room 1100 cubic feet capacity; temperature about 70° F. Three hundred and sixty cubic centimetres of Mulford's formaldehyde. Room carefully pasted up. Exposure twenty-two hours. The apparatus was started with 500 cubic centimetres of formaldehyde, but through accident only 360 cubic centimetres were evaporated. The tubes clogged.

	Anthrax.	Diphtheria.	Typhoid.	Hog Cholera.
Cultures dried on glass	0	0	0	0
" " paper	0	0	0	0
" " muslin	0	0	0	0
" " flannel	0	0	0	0

(3) *The Schering Formaldehyde Disinfector.*—This little apparatus is very inexpensive, exceedingly simple, very durable, and seems capable of excellent service. It is open to one apparent disadvantage,—*i.e.*, that the gas it discharges is dry, and, according to my experiments, less active than the watery vapor of the other apparatus.

This demerit may, however, be fully compensated for by using a greater quantity of the paraform pastilles.

The apparatus is exceedingly simple in principle and construction. It consists of a small wire basket suspended in a conical sheet-iron support, beneath which a wood-alcohol lamp is burned. The basket is filled with pastilles of paraform, one pastille for each cubic metre, is usually regarded as sufficient, which are transformed into formaldehyde by the heat of the lamp.

The details of the experiments are shown in the accompanying tabulations.

FORMALDEHYDE GENERATING APPARATUS.

Experiment VII.—Schering's apparatus, with Schering's formalin pastilles. Room 2030 cubic feet capacity; temperature 70+° F.

Seventy pastilles were used. Room kept closed for about twenty-four hours afterwards.

	Anthrax.	Diphtheria.	Cholera.	Typhoid.
Cultures dried on glass	++	+	+	+
" " paper	o	o	+	+
" " muslin	o	o	o	o
" " flannel	o	o	o	o

This experiment, depending upon dry formaldehyde, coincides in result with the dry gas of the Trillat apparatus,—condenser apparatus. It may be that had I consumed more of the pastilles it would have done better. This remains to be seen. If under such circumstances all the bacteria are destroyed, it must recommend itself as the best, cheapest, and most simple apparatus.

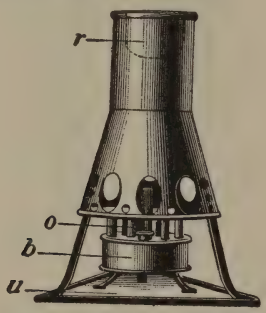

FIG. 3.—Schering's formalin disinfector and deodorizing lamp.

Experiment VIII.—Room 1100 cubic feet capacity; temperature about 70° F. Used sixty-two of Schering's pastilles. Cultures exposed as usual. Room pasted and closed for twenty-two hours. The outer door was not pasted up. When room was opened there was no vapor there. The paraform pastilles were all consumed.

	Anthrax.	Diphtheria.	Typhoid.	Cholera.
Cultures dried on glass	o	o	o	o
" " paper	o	o	o	o
" " muslin	o	o	o	o
" " flannel	o	o	o	o

In this experiment the room had only a little more than half the cubic capacity of the other, and a greater number of pastilles were employed,—I used all I had, nearly twice the number directed. The results were perfectly satisfactory.

The conclusions to be drawn from the experiments are quite obvious. All three apparatus are efficient for the purposes for which they are designed. One must be careful, however, to make sure that—

(1) The room is thoroughly closed.

(2) That a sufficient amount of the disinfectant is discharged. I think it best to use considerably more of the pastelles and solutions than are usually recommended. In practice one does not desire to know *how few pastilles* or *how little fluid* will accomplish the desired end, but rather a number or quantity in excess of it will be *certain* to disinfect the apartment.

(3) The apparatus works properly. I stood by one of the Sanitary Construction Company's apparatus for an hour on one occasion, supposing that formaldehyde was being discharged into the room, when, in reality, not a molecule of gas entered, because the tubes were permanently clogged up with paraformaldehyde. At the end of a given time the apparatus should be inspected to see that no mistake has occurred.

(4) That the room is kept closed long enough after the gas has entered. About twenty-four hours is the requisite time. After this time has elapsed the room should still smell so strongly of formaldehyde that the nose and eyes burn when it is entered.

Certain facts are also to be remembered. The gas, while diffusing with great readiness, has no marked penetrating power. This is best shown by the facility with which the micro-organisms used were destroyed when distributed through porous fabrics, such as paper, cotton, and flannel goods, and the retained vitality of the cultures dried upon non-absorbing surfaces, such as glass.

The practical application of this knowledge will teach us not to depend solely upon formaldehyde to completely disinfect a room and its contents, but to follow the gaseous disinfection by the application of well-known efficient germicidal solutions to all articles with glazed surfaces, china, porcelain, marble, metal, etc., that the room may contain. I would even suggest extending this feature of complete disinfection to the varnished wood-work of the bedstead, etc., that may have been directly contaminated by the patient.

Thus it is shown that, while in formaldehyde gas we now have an efficient, positive, and harmless disinfectant for such objects as laces, plush, velvet, curtains, carpets, table-covers, hangings, etc., for which heretofore no satisfactory method of disinfection had been devised, and while in ordinary cases its action upon all objects may be efficient and satisfactory, and its action upon metals, picture-frames, etc., harmless and non-corrosive, in cases of serious infection, where it is possible that infectious matter, such as blood, saliva, sputum, feces, or urine, may

be dried upon chamber-vessels, basins, wash-stands, glasses, metal bedsteads, and the like, its action should be supplemented by a cleansing and disinfecting solution with solvent and penetrating powers.

In using the autoclave and the "regenerator" one should be careful to place below the mouth of the tube of exit for the gas a piece of oil-cloth or heavy paper, as moisture rich in precipitated paraformaldehyde is apt to fall upon the carpet of the room and injure it.

DIPHTHERIA AS VIEWED BY THE GENERAL PRACTITIONER DURING THE LAST YEAR.[1]

By Alexander McAlister,

CAMDEN, N. J.

It is not my aim to present a learned dissertation either on the pathology or scientific treatment of diphtheria. These subjects have been before the profession so constantly during the last three years that such a paper would only prove an intrusion upon your valuable time. What I wish to do is simply to make a few practical observations that must be patent to every general practitioner.

Until recently diphtheria ranked as the gravest of the anginas, and the most dreaded of the acute febrile affections. This applies with especial emphasis to the laryngeal types, formerly largely regarded as a distinct disease, but now generally recognized as identical with diphtheria of the larynx, and properly treated with heroic doses of antitoxin. Yet the nasal and naso-pharyngeal types, with their preponderance of constitutional manifestations and former frightful mortality, were scarcely less dreaded, both by the physician and parent.

Recent advances in diagnosis and treatment, it seems to me, have left scarlet fever at the head of the anginas and typhoid at the head of the acute fevers in point of morbid possibilities. Even the progress which has been made in diagnosis is to be credited to antitoxin, it being due to the new impulses contributed by the introduction of serumtherapy.

In the American Pediatric Society's report on the collective investigations of the antitoxin treatment of laryngeal diphtheria in private practice, this advance is admirably noted in the following words: "In the early days of intubation it was customary to speak of the percentage of recoveries, and 24 to 27 per cent. were considered good results. In the last report recoveries had crept up so high in the

[1] Read before the American Medical Association, June 10, 1898, at Denver, Col.

100 cases that it seemed more natural to speak of the percentage of mortality," and, again, in speaking of O'Dwyer's personal experience prior to the introduction of antitoxin in nearly 500 operative cases of laryngeal diphtheria, in which the mortality-rate was 72.44 per cent.: "When he had reached the seventieth case on the fifth hundred, something occurred which carried the phraseology up over the divide. At this point in history antitoxin arrived and interrupted forever the old series. In his next fifty-nine cases the mortality was only 23.7 per cent."

Recognizing that the past year was doubtlessly exceptional in many a section of our country for the small number of cases of diphtheria which appeared, it may nevertheless be observed that, incidently with the more general introduction of serumtherapy, we have a perceptible decrease in the number of cases as well as in the severity and popular dread of the disease and the rate of mortality. This wholesome change is due exclusively to an ever-broadening and deepening conception of both diphtheria and its *biological antidote*, antitoxin.

The resort to immunizing injections to prevent the spread of diphtheria to other members of the family, where a case or two has appeared, is not so largely practised as the value of the measure demands, but is rapidly gaining in popular favor. But, aside from any resort to this measure, it is evident that serumtherapy has exerted a most potent influence in restricting the number of cases. While it is always within the range of possibility for the most malignant case to follow the mildest case, yet the proneness to spread the infection is always greater in severe cases. Admitting this, it is clear that whatever checks malignancy also controls the tendency to spread and materially restricts the number of cases that would otherwise occur. This beneficent influence can never be adequately estimated, although it must be very considerable. One of the most encouraging experiences of many a general practitioner, who has adopted the serum treatment of diphtheria, is that he now only exceptionally meets more than the initial case or cases in a family. Many of the latter class even assert that they never meet the exceptional new infection.

In view of all these facts it would seem that the attitude of the general practitioner towards the serum treatment is a more seasonable subject for discussion than the merits of antitoxin. In the investigation of this most interesting subject the initiative was doubtlessly taken by Dr. George L. Cole, of Los Angeles, who made a study of the question in his own State, and reported, recently, in an admirable paper on "Serotherapy," read before the State Medical Society of California. In response to a circular letter addressed to about 300 physi-

cians he received replies from 156. Of this number only four expressed themselves as antagonistic to serum treatment, but none of these had personally tried the remedy nor had an occasion to do so.

With the opportunity to compare the clinical notes of hundreds of physicians who have each treated many cases in private and hospital practice, of thousands of others who have treated less numbers, and with the unequivocal results of great collective investigations, conducted both at home and abroad, it would seem that even the most obscure, general practitioner is no longer justifiable in refusing to give his diphtheria patients the full benefit of the more humane and successful serum treatment.

According to my personal observations this effect is rapidly being attained. Physicians who were once loud in their opposition are now warm advocates or, in preference to the humiliation of a public retraction, have become secret users of antitoxin.

Speaking of the product, as now freely available to every physician, it is to be observed that marvellous progress has been achieved. I was one of the first in the East, outside of our large cities, to employ the remedy. That was before antitoxin was prepared in Philadelphia for commercial or other purposes. The product was then difficult to procure and very expensive. The quantity of serum necessary to inject in order to secure what was then regarded a full curative dose was inordinate, being upward of one fluid ounce. The syringe which I then employed has long since been laid aside as suggestive rather of minor rectal surgery.

The improvements which made it possible to inject much larger doses in very much smaller quantities of serum—that is to say, which gave us concentrated serums—are without parallel elsewhere in the pharmaceutical sciences.

One year ago the most concentrated product in the market contained 500 immunizing units to each cubic centimetre of serum, but at present serums are available of 1000 and even 2000 units per cubic centimetre. The latter, it seems to me, have reached a degree of concentration which is no longer advantageous or even practical. A serum which contains nearly 150 immunizing units to each minim of the serum, or even half this strength, is relatively difficult to handle, owing to the small bulk and the unavoidable sources of loss, while it remains a question whether such high concentrations possess any special therapeutic advantages at all. It seems to me, and in this I voice the sentiment of the general practitioners with whom it is my pleasure to exchange views from time to time, that a product permitting the administration of 1000 units of antitoxin in from two to four cubic centimetres—*i.e.*, from one-half to one fluid drachm of

serum, if well ripened and conveniently bottled—is the ideal antitoxin from every point of view.

It is conceded that the more concentrated the product is the more readily deterioration takes place, so that the higher strengths are relatively unreliable after one to four months. This in itself is a considerable disadvantage to the general practitioner, who more often than any other class of physicians finds it indispensable to keep an available quantity of a strictly reliable product constantly upon his shelves. To him there are a score of elements that enter into a particular antitoxic serum of vastly more importance than higher degrees of concentration, however, *per se*, commendable as an achievement in its preparation the latter may be. Chief among these elements I would name a high unit value, seasoning of the serum, a definite system of standardizing, convenient and sufficiently strong bottles, and uniform potency.

PRIMARY CARCINOMA OF THE ESOPHAGUS; PERFORATION OF THE RIGHT BRONCHUS; EXTENSION TO THE RIGHT LUNG.

By J. P. Arnold, M.D.,

PHILADELPHIA.

Cancer, though it is the most frequent disease of the esophagus, is not of very common occurrence, and is most frequently primary. Zenker and von Ziemssen[1] in 5079 autopsies found it present in .36 per cent. of the cases. The growth was primary in .25 per cent.

The case here reported was under observation eight months. The patient, a male, aged 62 years, was admitted to the Presbyterian Hospital August 20, 1896, complaining of rapid loss of flesh for the past four months, constant vomiting, pain behind the middle of the sternum, and in the epigastrium. In the past four months the patient has been able to swallow scarcely any solid food, and has lived on bread and milk. He has a sensation, after attempting to swallow solid diet, as if the food lodged at a point which he locates behind the lower third of the sternum.

The man's family history was negative, except that one brother died of cancer of the stomach. A point of interest in the patient's own history is that he was a sailor and was accustomed to the use of large quantities of strong liquor, especially rum. About a year or a year and a half ago he noticed that immediately after eating he would experience a feeling of intense smarting behind the middle of the

sternum. In a short time the food apparently lodged at this point and would be regurgitated.

Upon admission the man was much emaciated and very weak. His frame was that of a man who should weigh 160 pounds. Weight at this time was 115 pounds. Blood count showed a little above 3,000,000 red cells. Esophageal bougie stopped twelve inches from the teeth. The vomitus gave no reaction for free mineral acid. Lactic acid was present.

He remained in the ward for four months. During this time he gained fourteen pounds in weight and improved considerably in general condition. A month before he left a bougie, the size of a small acorn, could be passed into the stomach.

On February 16, 1897, he was readmitted, again much emaciated and weighing about 110 pounds. He had been able to swallow scarcely anything for three weeks. A medium-sized bougie could be passed into the stomach, though considerable resistance was met with at the level of the cricoid cartilage, and just before the cardiac orifice was reached. On March 2, 1897, he began to cough and complain of pain over the right side of the chest. There was at this time marked dulness over the lower lobe of the right lung. Expectoration became profuse and very offensive. He progressively failed, and died of exhaustion on May 16, three months after readmission.

Autopsy.—The points of interest were as follows: The tissues of the mediastinum were adherent in one mass and tightly attached to the right lung. The lower lobe of the right lung was so tightly adherent to both thoracic and diaphragmatic pleuræ that it could not be removed without tearing its substance. The whole lobe was of a greenish color and was consolidated. The middle lobe showed the same condition. The mediastinal glands were much enlarged. The mediastinal tissues, with the aorta, trachea, esophagus, and as much as possible of the lower lobe of the right lung, were removed *en masse*. The stomach and intestines were empty. The stomach was very small; its capacity being only a little over 600 cubic centimetres.

Upon opening the esophagus a new growth encircling the tube like a broad belt was seen, beginning six centimetres above the cardia and extended upward ten centimetres. It completely encircled the tube, and the greater part of the surface was ulcerated. The obstruction was most marked at the lower end of the growth. The surface of the upper part was not ulcerated. At this point the obstruction was hard, whitish, and presented papillary elevations. The esophageal wall was perforated by the ulcerative process, and the opening communicated with the right bronchus. Sections of the growth, studied microscopically, showed the growth to be a squamous epithelioma.

The right pneumogastric nerve was embedded in the tumor near the site of the perforation. This probably accounted for the slow pulse observed during March and April. The pulse ranging from 50 to 60, though the temperature was between 100° and 102° F. The liver was fatty, but presented no nodules. The mesenteric glands were enlarged, but not hard. The kidneys showed a parenchymatous nephritis and a catarrhal pyelitis. There were a few small scattered nodules in the left kidney and on the peritoneum of the mesentery.

The character of the growth which invades the esophagus seems always to be a squamous epithelioma, though E. Rindfleish reports a case of a softer and more superficial form. The most frequent site of the growth, according to Gross,[2] is behind the larynx. Osler[3] gives the upper third as the most common situation. According to Zenker and von Ziemssen,[1] and Pepper[4] the growth is usually found in the lower third. The places of election, according to Pepper, being, in the order of frequency, just above the cardia, at the crossing of the left bronchus, and the region of the cricoid cartilage. In the case here reported the middle and lower thirds were involved. It is not usual for more than four inches of the tube to be affected.

Ulceration usually occurs and begins early. In the later stages signs of obstruction may decrease, due to the progress of the ulcerative process. This occurred in the present case. When first admitted to the hospital, not even the smallest bougie could be passed. Later a medium-sized sound passed into the stomach without difficulty.

Extension of the growth may occur to the stomach, pharynx, lungs, trachea, bronchi, lymph-glands, heart, aorta; or the vertebræ may be involved, and produce paraplegia, as in a case reported by Ross.[5] Perforation into the subclavian[6] or intercostal[7] arteries may occur, with fatal hemorrhage. A case is reported by Homans[8] which opened externally and into the trachea. Metastasis, according to Pepper, is less common than in other cases of carcinoma. Strümpell[9] states that metastatic growths in the liver, lungs, kidneys, pancreas, bones, and brain are not uncommon. In this case they were found in the kidney and peritoneum.

The predisposing causes, given by Strümpell,[9] are alcoholism, swallowing of foreign bodies, scars of old ulcers, and of hereditary origin. In the present case there was a history of alcoholism, and one brother died of cancer of the stomach.

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[6] Dickinson: Transactions of the London Pathological Society, 1860–66, Vol. xii, p. 108.

[7] S. Jones: Transactions of the London Pathological Society, 1857–58, Vol. ix, p. 202.

[8] C. Homans: Boston Medical and Surgical Journal, 1866, No. 74, p. 502.

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SOME RARE CASES IN THE PRACTICE OF A COUNTRY DOCTOR.[1]

By A. F. Van Horn, M.D.,

PLAINFIELD, N. J.

When I received the invitation to read a paper at this meeting of the Mercer County Medical Society, I was at a loss for a subject that would prove interesting and instructive to this body of men, some of whom were practising medicine long before I began my studies as a medical student; but, after considerable thought, I decided that, perhaps, I might derive some benefit from a discussion of a paper relating to some of my experiences as a country doctor for fourteen years.

Obscure Case of Pelvic Pain during Pregnancy.

The first case that I shall speak of is one in which it was very difficult to make a diagnosis and to formulate a line of treatment.

Mrs. B., aged 30 years. Family history very good. Both parents living and healthy. Four sisters and one brother all living and well, excepting that one sister had suffered with dysmenorrhea for several years. Personal history: Had always been well until about four years previous, when she had lead colic, due to lead in the drinking water, and was sick for some time. For several years after this attack of lead-poisoning the patient had very severe attacks of cramp colic whenever she was tired or had been subject to any nervous strain.

Early in January, 1893, the patient found herself pregnant for the third time. When about five weeks pregnant she began to complain of a bearing-down pain in the lower part of the uterus. This pain, as the patient expressed it, was as though there was a fist in the womb that was trying to force itself out, but could not. The uterus was very freely movable, and, although somewhat retroflexed, could easily be replaced. The uterus was very tender posteriorly, and could not be

[1] Read before the Mercer County Medical Society at Trenton, N. J., March 8, 1898.

touched without causing severe pain. The ovaries and tubes were healthy. The pain continued and grew worse day by day. After exhausting all of my resources, I called in consultation a doctor who had been in practice for over forty years. The result of this consultation was that I was advised to order absolute rest in bed and administer uterine and nerve sedatives. This line of treatment was followed out for about a week; but at the end of that time the patient was worse, and could get no relief without the use of morphine.

Another consultation was held, and about the same advice given as before, and still there was no improvement. At this time I wrote to the late Dr. Goodell concerning the case. His reply was that he could not account for this condition unless there was an extrauterine pregnancy or a retroflexed womb fast below the promontory of the sacrum. I had positively excluded both of these conditions by careful examinations at different times.

After about another week of suffering on the part of the patient, and intense anxiety on my part, I came to the conclusion that, unless something was done, my patient would die, for she was daily growing weaker. The heart-action was feeble, and the appetite was lost, the sight of food causing nausea and distress. The uterine pain continued except when the patient was under the influence of morphine. At this time the whole case presented a most distressing picture. I had about determined that the induction of abortion was the only thing that would save the patient's life, but before resorting to such an extreme measure, I decided to have the advice of an expert gynecologist. So I summoned a man of wide experience from Philadelphia to see the patient. After a very careful study of the case, by the consulting physician, I was advised to wait a little longer, and then, if there was no improvement, bring on labor and empty the uterus..

The patient was now well along in the third month, so, taking this advice, I decided to wait until the third month was past before resorting to extreme measures. At about the end of the third month the patient began to improve, and by the end of the fourth month she was able to be up and to attend to light household duties. About the end of the fifth month I was informed that there was something protruding from the vulva about as large as a big fist; upon examination I found that there was a varicose condition of the veins of the vulva and vaginal outlet. These veins continued to enlarge until, during the last two months of the pregnancy, there was a mass protruding from the vulva as large as the head of a full-term fetus. This mass could be returned to the vagina when the patient was in the recumbent position, but as soon as she assumed the erect position it would protrude again in spite of the use of tampons and other means to keep it back. The use of

astringent injections and ointments also failed to have any effect on this varicose mass.

I awaited labor with a great deal of anxiety, but was happily disappointed as far as trouble from the varicose veins was concerned; for as soon as labor came on, and the pelvic circulation was increased, the veins became empty, the varicose mass disappeared, and labor progressed normally until the head began to distend the perineum, when the patient became exhausted, and I was obliged to use the forceps to complete the delivery of a perfectly formed and well-developed female child, weighing about eight pounds. The puerperium was normal, and the patient was up and around the room in two weeks after confinement.

Fracture of the Sternum.

It has been my fortune to see one case of fracture of the sternum occurring in a man aged 63 years, and caused by his falling about twenty feet from the limb of an apple-tree, striking on the back of his neck and shoulders, thus causing a complete doubling up of the upper part of the trunk. I found the patient very much shocked and in a stupid condition. He responded readily to stimulants, and I proceeded to examine his injuries. I found that there was a fracture of the upper part of the sternum with the lower fragment overlapping the upper one. The left fourth costal cartilage was also torn from its attachment to the sternum. The fracture of the sternum was reduced by extending the thorax over a cushion, and retained in place by placing a compress over the lower fragment and completing the dressing with overlapping strips of adhesive plaster. The patient was kept flat on his back, and everything progressed favorably for about two weeks, when I was startled by a messenger saying that Mr. M. was dying. Upon reaching his bedside, I found myself face to face with a condition that tries the nerve and skill of a physician to the utmost. The patient was gasping for breath about eight times in a minute, the lips were blue, the nose pinched, the face pale, the extremities cold, the pulsations of the arteries could not be felt, and the heart-sounds could hardly be heard. He had all the appearances of a person *in articulo mortis,* and I had no hope that his life could be prolonged for more than a very few minutes; but with a determination, born of desperation, I began the use of the most powerful heart and respiratory stimulants hypodermically with the use of heat externally, a sinapism to the precordium, and friction to the extremities. After about two hours of hard work I had the satisfaction of hearing the patient say, "Doctor, what are you trying to do to me?" This attack of heart failure left him very weak, and it was some time before he recovered from it; but in six weeks from the time of the accident he was

able to be out of bed, and the fracture was united without any deformity.

Dislocation of the Sternum.

I have also seen one case of dislocation of the manubium from the body of the sternum. This accident occurred in a very fleshy woman, about 60 years of age, and was caused by muscular action. In trying to raise a window that worked hard, she heard something snap, and felt a severe pain in the upper part of the sternum, but did not summon surgical aid for several days afterwards. There was some crepitus on full inspiration and slight displacement of the fragments. The dressing consisted of overlapping stripes of adhesive plaster, similar to the dressing for fracture of the ribs.

Hemophilia.

The next case was one that caused me a great deal of anxiety and at last had a fatal issue. George P., aged 45 years, a strong, robust man, over six feet in height, and weighing over 200 pounds when taken sick. Family history: Father still living, aged 77. Mother died at the age of 50, of some obscure brain trouble of several years' duration. She had been subject to severe attacks of epistaxis from early youth, and a slight cut or scratch would bleed profusely. In short, she was of the hemorrhagic diathesis. Two sisters and two brothers living, all of them well, and none of them having the tendency to severe hemorrhages.

Personal history: Had never had any severe sickness, but about nine years previous to this illness he had a very profuse hemorrhage from the nose, lasting several days. About two years later he had another attack of epistaxis. About two years previous to this last illness I extracted a tooth for him, and the hemorrhage from this continued for two days. I was summoned to Mr. P. on February 3, 1897, and found him with a fully developed attack of influenza, with high temperature, and a full strong pulse. Bowels had been freely opened by a purge taken the night before. There was some congestion of the lower lobe of right lung. Ordered the patient to remain in bed, and prescribed for him according to the indications, also informed him that pneumonia would probably develop. On visiting him the next morning I found that the whole lower lobe of the right lung was consolidated and that pneumonia was fully developed. The disease now assumed the regular course of an attack of acute lobar pneumonia, with rusty sputa, etc., and on the ninth day the pulse and temperature were normal. On the evening of the ninth day the patient had a chill, and by the morning of the tenth day the upper lobe of the right lung was consolidated, and he was again having considerable fever with all the other symptoms of pneumonia. This time the disease

did not run so favorable a course, for the physical and nervous prostration was greater; but on the nineteenth day of the disease the pulse and temperature began to fall, and resolution began to take place in the affected lung. The whole aspect of the case was that of improvement; but this was of short duration, for on the morning of the twenty-first day I was hastily summoned to the bedside of the patient, and found that during the night he had been taken with a very severe pain in the region of the right kidney, this pain soon extended down along the course of the right ureter to the bladder. In about an hour after the pain came on he began to pass bloody urine, and in a short time it was impossible to see that there was any urine mixed with the blood; there were clots of blood from two to four inches long which were complete casts of the ureter. In addition to the renal hemorrhage there were hemorrhage from the nose and throat, a large blister on the end of the tongue filled with thin, black blood, and another blister of the same character in the corner of the mouth; but, notwithstanding these numerous hemorrhages, there was no bleeding from the intestines, nor was there any hemorrhage from the bowels at any time during the sickness. The patient at this time was in a collapsed state, temperature subnormal, pulse weak and rapid, and the extremities cold and numb. After the use of heart stimulants hypodermically, and heat externally, he rallied somewhat, but was still in a desperate condition. As soon as there was a slight improvement in his condition I began the use of remedies to control the hemorrhage, which still continued. By the free use of stimulants the patient was kept alive; but during the twenty-first and twenty-second days he was in a very critical condition, with subnormal temperature, and weak, thready pulse; by the morning of the twenty-third day the hemorrhages had ceased except that from the kidneys, which still continued; but the quantity was not so great as at first, and more urine could be seen mixed with the blood. On the evening of this day the patient began to rally; his temperature came up to the normal point, and the pulse assumed a better character, being slower, stronger, and fuller. The patient said that he felt better than he had for several days before; but, notwithstanding this apparent improvement, there were ecchymotic spots appearing all over the body,—more particularly around the head,—the ears and eyelids being especially affected. Over the forehead and around the face were numerous spots from the size of a shot-grain to that of a split pea. In one place, where a hypodermic injection had been given, there was an effusion of dark blood at least eight inches in diameter. This condition of affairs continued until the morning of the twenty-fourth day, when there was a change for the worse, and the hemorrhages increased in quantity. About two o'clock in the afternoon the patient attempted to raise up in bed; but fell back and

expired in a few minutes, being conscious to the very last. I was not permitted to examine the case *post-mortem.*

I have given this case in detail for it was an unusual occurrence, and I cannot find another case on record where this purpuric condition followed pneumonia. This case also illustrates how that obscure something, that constitutes the hemorrhagic diathesis, is handed down from parent to child.

Second Attacks of Scarlet Fever.

Second attacks of scarlet fever are so rare that some authorities claim that they never occur, and that so-called second attacks are cases of roseola, erythema, or some septic rash. While not claiming to be an authority on this subject, I think that the following cases offer conclusive evidence that second attacks of scarlet fever *do occur.* In the latter part of December, 1894, I was called to see a boy aged 7 years, and found him with a very rapid pulse,—viz., 140,—temperature, 104° F.; tongue very heavily coated with a white fur, with the enlarged papillæ projecting through the coating; pharynx very much congested and of a scarlet color; cervical lymphatic glands enlarged and tender, and nausea and vomiting, but no eruption. Twenty-four hours later I found him with a copious scarlatinal eruption all over the body. The nausea and vomiting were relieved, but the other symptoms were about the same as at the first visit. While I was making my third visit to this case my attention was called to his sister, aged 4, who was feeling ill. Upon examination I found that she was developing the same disease as her brother. These cases ran the usual course of scarlet fever, and were convalescent in eight days. About a week after this the girl was attacked with acute nephritis, and was very sick for about three weeks, but ultimately recovered. Both of these cases desquamated with large scales and flakes.

About two years after this experience—viz., in January, 1897—I was called to see the little girl, now aged 6. I found her with incessant vomiting, not being able to retain anything on the stomach at all. Pulse, 150; temperature, 105° F.; tongue heavily coated, with the enlarged papillæ projecting through the coating; pharynx very sore and red; cervical glands very much swollen and very tender, and a rash appearing on the face and on the covered parts of the body. The nervous system was very much affected, the child lying in a half stupor, from which she could be aroused, but relapsing into the same condition as soon as she was let alone for a few minutes. In fact, the patient presented all the symptoms of a grave disease. After a careful examination I made a diagnosis of scarlet fever, and ordered that she be isolated at once, and that her brother be sent to another part of the house, where the grandparents lived. This case was a very severe

one, requiring the use of baths to the body and ice to the head to reduce the temperature, and keep it below the danger-point. In about ten days the patient was convalescent. I instructed the family to thoroughly disinfect the house, and that the brother should be kept away from his sister until desquamation was completed; but on this point my instructions were not obeyed, and he was permitted to see his sister in a short time. In about four days from the time the boy was allowed to see his sister he was taken sick with all the symptoms of beginning scarlet fever, and he, too, passed through an attack of the disease; but this attack was not nearly so severe as the first one.

Doubtless there are some who will claim that I was mistaken in my diagnosis of these cases, and that one or other of these attacks was not scarlet fever, but I cannot see how there can be any error in the diagnosis where we have such a distinct clinical picture as we have in these cases. There is no other disease in which we have the intense redness of the throat, the so-called "strawberry tongue," the swelling and tenderness of the cervical lymphatic glands, the rapid pulse, the high temperature, the nausea and vomiting, and the desquamation in large flakes or scales, combined as we had in these two cases, unless it is scarlet fever. Taking either one of these attacks by itself, no one could question the diagnosis, so, to my mind, it is perfectly clear that both of these children had two attacks of scarlet fever.

At this point I would like to enter my most earnest protest against mild attacks of this disease being called scarlatina, and the physician and family saying, "Oh! it is nothing but scarlatina and does not amount to anything; there is no danger." It has been my lot to see two epidemics of scarlet fever started by cases where the physician had said, "It is only scarlatina and it is not dangerous," thus giving the parents liberty to send their children to school and church, while desquamation was taking place, and where the children amused themselves and their companions by pulling the dead skin off of their fingers. Such carelessness as this is nothing less than criminal, for I know of one death that was directly chargeable to the calling of a mild attack of scarlet fever nothing but scarlatina, and allowing the desquamating child to attend school. While scarlatina is the correct name for this disease, we, as teachers of the laity, ought never to use it to designate a mild attack of scarlet fever, and we should so educate our patrons that they can understand that the mild attack of this disease, which may resemble the gentle shower of rain, may be the parent of an attack that will equal the tornado in its violence and destructiveness.

Now, gentlemen, probably to some of you these will not be rare cases, but they have all been of such a character that they have re-

quired deep thought, and there have been questions of diagnosis and treatment, in each case, that have been hard problems to solve. If I have been able to bring out any new points that will help any of you in the battle against disease, I will feel amply repaid for the time that has been taken in recording and reporting them.

MEMORANDA.

MELANCHOLY AND BRAIN-DISEASE IN NORWEGIAN LEPERS.

The *Journal of the American Medical Association*, February 26, 1898, published a letter of Dr. Armanes Hansen, Bergen, Norway, in which he took occasion to rap me over the knuckles, because I had interpreted a certain photograph as melancholy of leprosy. In that letter Dr. Hansen said that he had never seen a case of melancholia of leprosy; that such a disease was an invention of Dr. Ashmead; that neither he nor any one else in Norway had any idea of the existence of such an affection; that it did not exist there, *because the brain was never affected in leprosy*. In some publications of mine since Dr. Hansen published his letter I have expressed astonishment at Dr. Hansen's statement. For I knew that melancholia of leprosy *does* exist, and that the brain may be affected in leprosy. In the *Alienist and Neurologist* for July I published an article, entitled "Melancholy of Leprosy," in which I quote a case reported by Professor Meschedes, of Königsberg, Prussia. This authority considers the relations between leprosy and dementia, in the case quoted by him, as being most intimate, in fact, as those of cause to effect. "I consider," says he, "that leprosy exerts a direct influence on the development of dementia, the cerebral phenomena resulting possibly from some irritative lesions of the nervous system, brought on by Hansen's bacilli or by their toxines. . . . After a short initial period of melancholy," says Dr. Meschedes, "hallucinations of all the senses suddenly appeared. The predominance of tactile hallucinations pleads, in my opinion, in favor of the hypothesis of a direct action of the leper bacilli on the nervous system."

I quote also from reports of Dr. Havelburg, of Brazil, some results of autopsies performed at Rio; these show many cases of brain-disease in lepers, among others three cases of dementia, presumably

melancholy, preceding or attending them. My own experience in Japan, and that of Dr. Garcès, of Colombia, show that suicides of lepers from melancholia are not exactly uncommon in those countries.

Accepting Dr. Hansen as a considerable authority on leprosy, at least in his own country, I expected to find upon investigation that, in reality, there was no melancholy of leprosy in Norway. I am therefore greatly surprised to find that even in Norway such cases appear, and that the brain of Norwegian lepers is affected. For I received a letter, dated June 9, 1898, from Dr. Edward Kaurin, the able leprologist of the Reknas Leper Asylum, which I give here *in extenso.*

"MOLDE, NORWAY.

"DEAR DR. ASHMEAD,—I have myself seen no case of melancholy of a leper, but often I have remarked a mental depression, particularly in the beginning of the disease. Doctor Sand, at Reitqjardet Leper Hospital, near Trondhjen, mentions in the last report of leprosy in Norway, in the last five years, 1891–95, nineteen cases of insania, but he does not tell of what sort the insania was. He also mentions a suicide of a leper, probably caused by melancholy depression.

"Yours truly, EDW. KAURIN."

ALBERT S. ASHMEAD, M.D.

JACKSONIAN EPILEPSY; OPERATION; CURE.

J. S., aged 30, a man of temperate habits and excellent family history, had always enjoyed robust health. He never experienced any form of convulsion until August, 1896. At that time he suffered a sunstroke. On regaining consciousness he was seized with a violent epileptic convulsion. He recovered rapidly from the sunstroke and seemed in good health, except for frequent headache, until August, 1897, when, on the death of his child, he was again seized with epilepsy. About one month after this the trouble recurred, and from that time on the period of time intervening between the convulsions became progressively shorter. Heroic doses of the bromides, alone and combined with other remedies, exerted little or no influence. In November I advised an operation as the only hope of cure. No scar was visible on the scalp nor was any depression present. But I had noted that the approaching convulsion was often ushered in by twitching of the left foot, then rapidly spreading to the entire body. The convulsions at this time often succeeded each other so rapidly that for several hours the patient did not regain consciousness. He had become extremely

quarrelsome and morose during his lucid intervals, and complained of constant severe frontal headache. On the 26th of November he submitted to an operation. Guided by the fact that the approaching attack often manifested itself first in the left foot, I trephined over the motor area of the left foot. The membranes were opened, and with an electrode the left foot-centre accurately located, and removed in greater part. The patient had two seizures a few minutes before anesthetization. Since the operation there has been no return of the convulsions, the headache has entirely disappeared, he has regained his normal evenness of temper, and at this date, over seven months after the operation, is the picture of robust health.

It may be interesting to note that five months after the operation the patient's wife gave birth to a female child, whose left arm was wanting below the elbow.

HERBERT P. FISHER, B.S., M.D.

GERMANTOWN, PA.

CLINICAL DEPARTMENT.

HERNIA WITH AN UNUSUAL COMPLICATION.

THE following operation, performed by Dr. E. H. Stevens at the Cambridge Hospital, may be of some interest: Mrs. S., aged 60 years, for the past eight years had suffered from a large inguinal hernia on the left side. During the last three weeks there had been an opening through the skin corresponding to about the external ring; "something red" could be seen beneath. This did not worry the old lady very much. Finally, a bunch as large as a fist protruded, and fecal matter was discharged. This caused her to consult a physician. Upon his recommendation she came to the hospital. The protruding bunch was about four inches in diameter. It had two openings, a large and a smaller one, each admitting a finger easily. The bunch was apparently adherent to the ring. There was no pain nor much discomfort, and apparently no need of immediate action. The diagnosis was made of rupture of the intestinal wall and invagination of large and small intestine through the opening. The mucous membrane was outside.

The vermiform appendix could be felt in the canal through the skin. Operation was performed on the following day. An opening was made through the abdominal wall and the cecum found. Traction was made upon the cecum and pressure upon the bunch of intestine,

with the result of returning the bowel to its normal position. An opening was found in the posterior part of the cecum one inch in diameter, with swollen and ragged edges. The inguinal canal was laid open and the sac dissected out. The appendix was removed. The edges of the intestine were turned in and two rows of sutures inserted. The rings and canal were sutured.

Another opening in the abdomen, higher up, was made for drainage. Three days later the last opening in the abdomen was sutured.

The patient scarcely had any inconvenience whatever from the operation. There was no elevation of temperature and no pain. At this report, nine days after the operation, she is very comfortable.

N. V. Shannon, M.D.

Cambridgeport, Mass.

ALUMNI NOTES.

The Results of the Examination recently held by the State Board of Medical Examiners of Pennsylvania.

The following report of the results of the examination recently held by the State Board of Medical Examiners of Pennsylvania has just been published:

	No. Exam.	No. Rej'd.	No. Rej'd.	Gen. Average.
University of Pennsylvania	93	1	01.0	83.63
Medico-Chirurgical, Philadelphia	76	8	10.5	78.84
Woman's Medical, Philadelphia	26	1	03.9	78.68
Baltimore Medical College	25	6	24.0	76.71
Physicians and Surgeons, Baltimore	2	1	50.0	76.71
Jefferson Medical College	20	5	25.0	74.73
Western Pennsylvania	21	8	38.1	72.39
Miscellaneous	53	17	32.1	75.61
Total	316	47	14.9	78.77

Appointment.

Dr. E. O. Shakespeare has been commissioned by the War Department as brigade surgeon, with the rank of major, and has been assigned to duty as a member of the General Board of Sanitation, whose duty it shall be to inspect the various army-camps as to their sanitary condition.

Necrology.

Dr. Jacob Shimer died in Philadelphia, July 28, 1898. He was born in Shimersville, Lehigh County, Pa., in 1836, and was graduated from the Medical Department of the University of Pennsylvania in 1857. He began the practice of his profession in Bethlehem, but thirty years ago he removed to Philadelphia, where he resided until his death.

Dr. Lawrence S. Smith, surgeon, First Army Corps, died at sea August 15, 1898, on board the hospital ship "Relief," while on his way to Philadelphia from Porto Rico. Dr. Smith was educated at the Cheltenham Military Academy and at the University of Pennsylvania, graduating from the College Department in 1888, and from the Medical Department in 1891. He then served as resident physician at the University and Pennsylvania Hospitals. He was appointed assistant surgeon, First Regiment Infantry, April 11, 1893, which position he resigned June 6, 1894, but to which he was reappointed the following October. He was commissioned a major July 16, 1895.

The Minute Anatomy and Physiology of the Biliary System.

Dr. Futterer (*Medicine*, July) thus draws the following conclusions from his researches into the bile passages: (1) The roots of the bile-duct system are inside of the liver cells, as intraprotoplasmic channels, which form complicated net-works, and which closely surround the nucleus. (2) An intranuclear system of bile-channels communicating with the intraprotoplasmic channels does not seem to exist. (3) The intraprotoplasmic channels are in direct communication with the bile-capillaries. (4) Under normal conditions the intraprotoplasmic channels are not visible, and if stagnation of bile distends them and makes them visible as net-works, this happens at the cost of the protoplasm and the life of the cells. (5) While the protoplasm under such conditions perishes very quickly, the form and structure of the nucleus remain intact for a long period. (6) The bile is secreted in the form of minute drops, which first appear around the nucleus. (7) We should now use the terms *bile-ducts*, *bile-capillaries*, and *bile-channels*.—*New York Medical Journal.*

EDITORIAL.

DR. WILLIAM PEPPER.

Dr. William Pepper, professor of the Principles and Practice of Medicine and of Clinical Medicine, and late provost in the University, died suddenly on July 28, 1898, at Pleasanton, California. He had been ill during the past winter, but after a month's sojourn in Florida he was much improved, and returned to his labors with his accustomed energy. Shortly after the annual commencement he left the city for California, hoping that a protracted rest from the multiplicity of tasks and responsibilities which he had shouldered so long would lead to a complete recuperation. Letters received at home soon after his arrival indicated that this hope was well founded, but while sitting quietly in his room he was seized with an attack of angina pectoris, which proved fatal within a few minutes. On every side his sudden demise is mourned, not only in the immediate circles in which his activities were most intimately known, but beyond those limits far and wide there is a feeling of public bereavement and a disposition to pay an appropriate tribute to his career.

Dr. Pepper was born in Philadelphia on August 21, 1843, the son of Dr. William Pepper, a distinguished physician, who occupied the chair of the Theory and Practice of Medicine in the University from 1860 to 1864, and who died in October, 1864, in the 55th year of his age. The son was graduated from the College Department of the University in 1862, and from the Medical Department in 1864. After receiving his degree he devoted himself especially to the study of clinical medicine and pathology, and in 1868, when morbid anatomy was made a separate branch in the University, he was elected to the lectureship. In 1870 he became lecturer on Clinical Medicine, and this title he retained until 1876, when he was given that of professor of Clinical Medicine, which he held until 1884, when he succeeded Dr. Alfred Stillé in the chair of the Theory and Practice of Medicine. His ability as a teacher and clinician is so well known by every alumnus of the medical school that to comment upon it here would be superfluous. In 1881 he became provost of the University, which post he held for thirteen years. The progress which the institution made under his direction is without a parallel in the history of education in

William Pepper

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America. His intelligent energy, keen foresight, and inspiring genius wrought a marvellous transformation. The material progress made by the University during his provostship is shown in a report made by him on his retirement from the office in 1894:

	1881.	1894.
Land	15 acres	52 acres
Number of students	981	2180
Fees of students	$92,701	$230,567

The same report shows the following departments created within that period:

The Wharton School, Veterinary School and Hospital, the Biological School, the Graduate Department, Department for Women, the Department of Physical Education, the Department of Archeology, and the Laboratories of Hygiene and of Chemistry.

In 1895, Dr. Pepper built and partially endowed the William Pepper Laboratory of Clinical Medicine as a memorial for his father. The following abstract from the address of Dr. Billings, made on the occasion of the formal opening of the laboratory, may be quoted here: "Broad and far has been his outlook in thus providing for the future a heritage of power, which mildew, flame, and frost cannot harm. It is not a statue or carving or memorial arch that he has given, things that will blacken and moulder and crumble as the centuries roll by, until the mills of the gods shall have ground them to dust. It is a perpetual well-spring of force, a storage-battery which will fill itself, and give out warmth and light and motion so long as this institution of learning shall exist on the earth. . . . This far-seeing, bold-planning man of the silver tongue and the open hand will be remembered as the founder of the first distinctive laboratory for research in clinical medicine in this country so long as there are sickness and death among the children of men."

To Dr. Pepper more than any one else belongs the credit of the impetus which has been given to higher medical education in this country, the University having been prompted to take the lead in establishing a graded four-years' course of study by the following liberal proposition made by him while provost: "Being impressed with the urgent importance of higher medical education, and believing that it is the duty and privilege of the Medical Department of the University of Pennsylvania to be the leader in this final reform of medical education in America, I beg to submit the following proposition: that on condition the University shall decide and announce before June 1, 1891, that a four years' obligatory graded course of medical study shall be established on or before September 1, 1891, I will subscribe towards

a permanent endowment fund of $250,000 for the Medical Department, the sum of $50,000, subject to the conditions below recited, and towards a guarantee fund of $20,000 per annum for five years the sum of $1000 annually during that period."

Notwithstanding his exacting duties as administrator, organizer, practising physician, and man of affairs, Dr. Pepper found time for a vast amount of literary work. In 1870 he founded the *Medical Times*, and he was for two years its editor. His most important works are a "System of Medicine by American Authors," published in 1885–86; "Diseases of Children," written in collaboration with Dr. John F. Meigs; and the "American Text-Book of the Theory and Practice of Medicine," a large portion of which was contributed by Dr. Pepper himself. Among his numerous contributions may be mentioned "Anematosis, or Pernicious Anemia," "The Local Treatment of Phthisical Cavities," "Trephining in Cerebral Disease," "Catarrhal Irritation," "Report on the Mineral Springs of America," "Epilepsy," "Phthisis in Pennsylvania." Among other publications are "Sanitary Relations of Hospitals," "Higher Medical Education, the True Interest of the Public and the Profession," "Report of the Medical Department of the Centennial Exposition," public addresses on "Force *vs.* Work," "Benjamin Franklin," "Benjamin Rush," and "The Relations of Graduate and Undergraduate Curricula."

Aside from the distinction to which his skill as a physician entitled him and the renown he achieved as provost of the University, his disinterested labors in promoting the welfare of the community gave him a conspicuous place among our foremost benefactors. Of late years there were few successful movements in education, municipal progress, and civic culture in which he was not a central figure. To him belongs the credit of establishing the system of commercial museums, which had as their nucleus a collection of fabrics and products obtained from foreign exhibitors at the World's Fair. It was his idea to have the Philadelphia commercial museums placed on a tract of land adjoining that occupied by the Museum of Science and Art of the University, so that there should be in one place a vast collection rivalling the far-famed South Kensington Museums, and making Philadelphia the art centre of the western hemisphere.

Three other important educational movements owe their success very largely to the untiring devotion of Dr. Pepper. The popular lecture courses at the University, the University Extension, and the Free Library of Philadelphia. The growth of the last has been phenomenal, and already its circulation is larger than any other library in the United States. It was his desire to have a central library building worthy of the city and suitable for the needs of so great an institution,

and in the work of bringing this about much of his time and energy were spent in the last two years.

As medical director of the Centennial Exposition in 1876, as one of the founders of the Museum and School of Industrial Art, as a member of the College of Physicians, American Philosophical Society, and Academy of Natural Sciences, and as president of the Pan-American Medical Congress, and of the Commercial Museum, he evinced an executive ability and a practical knowledge rarely associated with men of science.

In the passing away of Dr. Pepper the community has lost its foremost citizen, he who at once was a great philanthropist, a skilful physician, a successful educator, and a leader in every enterprise that was intended to promote the common weal.

THE STANDING OF UNIVERSITY GRADUATES IN THE PENNSYLVANIA STATE BOARD EXAMINATION.

In another department of the Magazine will be found a table published by the Pennsylvania State Board of Medical Examiners indicating the relative standing of the graduates of various medical schools in the examination held last June. It will be seen that only one out of ninety-three applicants from the University of Pennsylvania was rejected, and that the average of the whole number of University students was 5 per cent. higher than that attained by the graduates of the next college on the list, and more than 11 per cent. above the lowest.

Among the factors which have contributed to this excellent showing are the increased requirements for admission to the Medical Department of the University, the extended facilities for clinical instruction, and the more rigid examinations to which the students are subjected throughout the entire course.

MEDICAL PROGRESS.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM PEPPER, M.D., LL.D., AND JAMES TYSON, M.D.,

ASSISTED BY

M. HOWARD FUSSELL, M.D., AND A. O. J. KELLY, M.D.

Pathognomonic Sign of the Pre-eruptive Stage of Measles.

Koplik (*Medical Record,* April 9, 1898) again calls attention to a sign which he believes to be pathognomonic of the pre-eruptive stage of measles, and which he first described in 1896. It appears from seventy-two to twenty-four hours before the outbreak of the exanthem of the skin, and consists in an eruption of minute bluish-white specks, surrounded by a reddish area upon the mucous membrane of the cheek and lips. These minute specks are but slightly attached to the mucous membrane, and may be rubbed off if the mouth has been washed. As distinguished from other deposits, these spots never become white and opaque like sprue-spots, nor do they coalesce and become plaque-like, but always retain their punctate character. As the exanthem on the skin appears the eruption on the mucous membrane of the cheeks and lips become diffuse, and the character of discrete eruption or spotting disappears, leaving an intense general redness simply dusted over with myriads of bluish-white specks. When the skin eruption is at its height the buccal eruption begins to fade, and gradually disappears, even while the exanthem is still out.

The great value of this sign lies in the fact that its early appearance in the pre-eruptive stage of measles enables the physician to isolate such cases much earlier than has previously been possible. In differential diagnosis also this sign is of value in distinguishing measles from other eruptive diseases and skin-diseases resembling it, among which are rötheln, scarlet fever, beginning influenza, forms of erythema multiforme, and some drug eruptions.

The sign can be seen only in very strong daylight falling from a window directly on the mucous membrane. It is necessary to evert the cheeks and lips either with a spatula or the finger.

[The presence of this sign has been confirmed by a number of careful observers, and it will doubtless prove of great value in the early recognition of measles.]

Glossitis in Typhoid Fever.

Browne ("Aneurisms of the Aorta," 1897) has made a careful analysis of glossitis complicating typhoid fever, which occurred in the Johns Hopkins Hospital, the first such case in over 700 cases of typhoid fever there. He considers it of especial interest in that it occurred during convalescence from

the original attack and ushered in a relapse, being apparently the first symptoms of the relapse after twenty-four days of normal temperature. The relapse itself was mild except for the severe onset, and no further trouble in swallowing affected the patient after subsidence of the swelling. Diminution of the swelling in the left half of the tongue followed after the removal of the blood for cultures, and he considers this a support of the value of free incisions into the tongue in severe cases.

Aortic Aneurisms.

Browne ("Aneurisms of the Aorta," 1897) has made a careful analysis of 173 cases of aortic aneurism dying in St. Bartholomew's Hospital during the past thirty years. Of 631 cases of aneurism treated, 468 involved the aorta. Of the remaining 163, the popliteal artery was affected in 80 cases. One hundred and fifty-three of 173 cases were in men, and only 20 in women. The most common age was between 35 and 55. There were 58 aneurisms of the first part of the arch of the aorta, of these 24 were situated immediately above the valves, and the remaining 34 at a distance of one inch or more above them. The general direction was markedly to the right. The disease ended by rupture in eighteen cases. There were 35 aneurisms of the transverse arch. In these instances death usually resulted from asphyxia, the result of pressure. Rupture occurred in 121 cases. In 19 cases the aneurism involved both the ascending and transverse arch. There were 21 cases of aneurism of the third part of the arch, and death resulted from rupture in 16. In 14 of 23 cases of abdominal aneurism the aneurism sprang from the aorta immediately beneath the diaphragm, and 20 terminated by rupture.

The Treatment of Acute Heart Failure.

Williams (*Boston Medical and Surgical Journal*, August 4, 1898) makes the following remarks on this subject: The treatment of acute heart failure may perhaps be best referred to in connection with pneumonia, of which it too often forms the fatal turning point. In this disease the conditions affecting the heart are (1) stress of labor; (2) blood-supply and nutrition impoverished and vitiated; (3) innervation, excited and debilitated by the effects of shock and pyrexia.

It will be generally noted that the heart failure comes on suddenly, but there may have been one or two preliminary warnings of partial collapse, etc. At the very beginning of these signs ammonia should be given, but should be changed after a few days for a mineral acid, of which dilute phosphoric acid is the best. Some digitalis or strophanthus should be added to the mixture, and strychnine should be given separately either in an extra quantity or subcutaneously, if the absorbing powers of the patient are at all doubtful. But the most powerful remedial agent is oxygen, and should be at hand in all severe cases, and should be given in good time as an occasional inhalation. In any case, where heart failure threatens, the high temperature must be reduced by a degree or two by hot or cold sponging.

For sleeplessness, a small dose of ten grains or twenty grains of sulphonal taken in a hot fluid at 8 or 9 P.M., and with this preliminary a twenty-grain dose of bromide taken at 10.30 P.M., is often sufficient to secure some restful sleep.

When delirium is a marked feature hyoscine in doses of one-two-hundredth grain subcutaneously, and repeated once or twice, may sometimes be used to advantage. Cases of persistent sleeplessness almost invariably prove fatal with heart failure. In these severe cases morphine should be given to secure a few hours' sleep and to give the nervous system time to recuperate, and to allow of some restoration of heart-power before it is too late. Death has appeared to be averted in some cases by (1) a strong dose of food and stimulant; (2) one-third-grain doses of morphine with atropine; (3) the maintenance of aëration by the oxygen current being frequently played over the mouth and nostrils for a few minutes at a time. The oxygen may be warmed as it enters the bag by passing it through a coil of tubing immersed in hot water. Strychnine seems to favor this peculiar sleeplessness of patients when utterly exhausted, but its power is unrivalled as a cardiac stimulant, and its use in cases severe enough to lead up to this condition is quite essential, and it may be renewed on the effects of the morphine passing.

Acute heart failure in other diseases and from other causes requires a similar handling, varied to meet varieties in the case. Oxygen inhalations are particularly valuable in the treatment of heart failure due to fatty degeneration of the organ in old people. Cheyne-Stokes breathing is a symptom in these cases. Strychnine is a most useful cardiac stimulant.

Typhoidal Cholecystitis and Cholelithiasis.

Cushing (*Johns Hopkins Hospital Bulletin*, May, 1898) writes that acute suppurative cholecystitis is not an uncommon complication of the late stage of typhoid fever. In some of these cases there has been an associated cholelithiasis, but from a study of the reports obtainable it would seem that only a small percentage of cases with this complication during the fever were associated with gall-stones; a percentage no greater than could be accounted for by preformed stones. There seems, however, to be a distinct group of cases in which acute cholecystitis has appeared, not during the fever, but some months after it, and in all of these there has been an associated cholelithiasis. The observations of a number of observers lead to the hypothesis that a reaction akin to an agglutinative reaction of the organisms may take place in the course of time in the bile, the clumps being the starting-point for the deposition of the bilirubin, calcium salts, and the origin of stone. The occurrence of this post-typhoidal cholecystitis, therefore, may be readily explained by the above series of observations, summarized as follows: (1) The bacilli during the course of typhoidal infection quite constantly invade the gall-bladder; (2) the organisms retain their vitality in this habitat for a long time; (3) in the course of time the bacilli are almost invariably found to be clumped in the bile, suggesting the occurrence of an intravesical agglutinative reaction; (4) these clumps presumably represent nuclei for the deposit of biliary salts, as microorganisms may with regularity be demonstrated in the centres of recently formed stones; (5) gall-stone being present in association with latent, long-lived, infective agents, an inflammatory reaction in the viscus of varying intensity may be provoked at any subsequent period. The writer has been able to collect four cases of post-typhoidal cholecystitis associated with stones, in which the bacillus typhosis has been cultivated from the bile at operation, and reports two additional cases from the wards of the Johns Hopkins Hospital.

In conclusion he reports an interesting case of cholecystitis associated with stones, in which the bacillus of Eberth was present, but in which there was no history of previous typhoid fever, the gall-bladder infection apparently being primary.

THERAPEUTICS.

UNDER THE CHARGE OF

HORATIO C. WOOD, M.D., LL.D.,

AND

ARTHUR A. STEVENS, M.D.

Treatment of Leucocythemia.

Ewart (*British Medical Journal*, July 23, 1898) reports two cases of leucocythemia in which he has used inhalations of carbolic acid gas with advantage. One was a boy with an exceedingly large spleen, who had been under treatment for eighteen months without relief. In this instance the use of the gas was rapidly followed by a considerable reduction in the size of the spleen and with a remarkable improvement in the patient's general condition. The gas, having passed through a 20-per-cent. solution of potassium carbonate to free it from all traces of hydrochloric acid, is inhaled by means of a long india-rubber tube. In order to obviate respiratory complications oxygen is administered simultaneously. The inhalations last at first three minutes, and later seven to ten minutes, and are given several times a day. The application of galvanism to the spleen is given five minutes before, and during the whole sitting. There never has been any cyanosis or feeling of discomfort at the time or afterwards. A second case, that of a young man with less extreme splenic enlargement, also showed general improvement, but the diminution in the size of the spleen has hitherto been only slight.

The Pharmacological Action of the Thyroid Gland.

Hutchison (*British Medical Journal*, July 16, 1898) presents an excellent summary of our present knowledge as to the physiological effects of the administration of the thyroid gland. Its effects on metabolism is to increase oxidation in the body; it makes the tissues, as it were, more inflammable, so that they burn away more rapidly. The products of the disintegration of nitrogenous tissues appear in the urine almost entirely in the form of urea, uric acid and the exanthin bases being neither regularly nor appreciably increased, while the products of the fat-destruction are eliminated as carbonic acid by the lungs and water by the kidneys. It is important to note the large increase in the excretion of water which occurs under thyroid administration. Thyroid feeding seems to make the tissues drier. On cessation of the treatment this loss of water is very quickly replaced, and is accompanied by a corresponding increase in weight. Since the drug causes an elimination of nitrogen as well as of carbonic acid, it is evident that it does not increase the

power of the tissues to consume fat without at the same time causing an increased destruction of proteid, it is therefore not an ideal "antifat." The practical influence is that in treating cases of obesity by thyroid feeding the diet should not be much restricted, and especially that nitrogenous matter should be abundantly represented in it.

It is not yet determined whether the active constituent of the thyroid exerts its effects on the tissues directly or through the intervention of the nervous system. In favor of the belief that the latter method is the real *modus operandi* is the very minute quantity of the substance which is sufficient to produce powerful effects. The thyroid exerts its beneficial influence in myxedema by hastening on the life history of the cells. This explains, also, its action in backwardness of growth in children, and the good effect which it sometimes exerts in such skin-diseases as psoriasis and ichthyosis, where the final death and casting off of the epidermic cells seems to be much delayed. The occurrence of glycosuria as a result of thyroid administration has frequently been observed, and recent experiments tend to show that the glycosuria may be of the alimentary type.

Increased rapidity of the heart's action is perhaps the most constant of the effects produced by thyroid administration. Along with increased rapidity, one often observes other disturbances, such as irregularity, palpitation, or even threatenings of failure. This specific effect upon the heart renders caution necessary in administering the drug to patients with cardiac debility. In cases of obesity, where the fatty changes may also have affected the heart, this is especially necessary. It has also been suggested that this action would be likely to render its administration useful in functional bradycardia. It has been found that the active part of the thyroid has no effect on the blood-pressure. It would seem that small doses of thyroid extract produce no effect on the blood of healthy persons, while large doses cause an increased destruction of blood-corpuscles just as of other cells. In myxedema, however, the stimulus given to growth is manifested in the blood by a rise in the number of cells. The active constituent of the thyroid appears to be excreted entirely by the kidney. The excretion is a gradual one, since the action of the drug often continues for several days after the administration of it has ceased. Whatever the preparation employed, experience seems to show that it is best to give it in small doses, and frequently, rather than in large doses at long intervals. It is also necessary to feel one's way in the administration of thyroid, since idiosyncrasy plays a large part in the reaction which patients show to the drug. The headache, pains in the limbs, and cardiac symptoms, resulting from large doses, seem to be due to a specific action of the thyroid, since they occur after the use of perfectly fresh preparations. On the other hand, nausea and diarrhea are probably due to toxic products resulting from putrefactive changes in the preparation. The author does not regard with favor the preparation known as "thyroglandin," believing that it contains, in addition to the colloid matter which alone is active, various salts and extractives which are altogether useless.

The Local Application of Methyl Salicylate.

Linoissier and Lannois (*Bulletin de l'Académie de Médecine*, March 22, 1898) speak highly of the local application of methyl salicylate to the joints in rheumatic affections. They believe the action is due to the direct absorption of the drug through the skin and not to inhalation through the lungs.

They contend that it is converted in the blood into sodium salicylate, and the advantages of this method of administration are the production of a local analgesic effect, and the avoidance of gastric irritation. Moreover, headache, vertigo, and tinnitus are only exceptionally observed when the drug is applied externally. There is little or no local irritation. The remedy is valuable not only in acute and chronic articular rheumatism, but also to a less degree in infectious and gouty arthritis and neuralgia. In acute rheumatism it should be used twice daily. The method recommended is to paint the part with the salicylate of methyl, and to prevent evaporation by covering with several layers of india-rubber. The authors believe that more of the drug is absorbed when it is applied in the pure state than when it is mixed with oils, like lanolin and cosmoline. The usual dose is a drachm, but in acute cases, particularly infectious ones, two or three times this quantity may be used.

The Treatment of Inoperable Sarcomata by mixed Toxins.

Moullin (*Lancet*, No. 3884, 1898) draws the following conclusions from the study of his own cases and those of other observers: (1) It cannot be denied that there is a considerable number of instances in which sarcomata that had been given up as hopeless, often, after repeated operations, have absolutely and entirely disappeared under this method of treatment. There is no other method of treatment (except infection with the streptococci of erysipelas itself) of which this can be said. (2) Some of these patients have remained free from recurrence for upward of three years, the period which, in the case of excision of the breast from scirrhus, is regarded by many operators as justifying the use of the term cured. (3) In several of the instances in which sarcomata have disappeared after an attack of erysipelas the patients have remained free from recurrence for seven years and upward. (4) The fact that there may be a few, a very few instances in which sarcomata have disappeared, either spontaneously or after such diseases as acute specific fevers, has nothing to do with these conclusions. The statement that sarcomata do occasionally disappear is repeated with great regularity, but well-authenticated cases in which this has taken place are very difficult to find. (5) Nor are these conclusions in any way invalidated by the fact that injections of the mixed toxins are sometimes followed by the disappearance of other growths, such as lupus, keloid, syphilitic deposits, carcinomata, etc. It may make the disappearance of sarcomata more difficult to understand, but it in no way disproves it. (6) The proportion of instances of sarcomata that are cured by the injection of the mixed toxins depends among other things upon the histological character of the growth. Spindle-celled sarcomata are by far the most successful. This suggests the conclusion that the mixed toxins have a selective action even if it is not specific. (7) The disappearance of sarcomata is not due to inflammation, but to an intensely rapid form of fatty degeneration, comparable only to that which affects the hepatic cells in acute yellow atrophy of the liver. Inflammation and sloughing, when they do occur, are septic complications. (8) Degeneration and absorption may occur whether the toxins are injected directly into the tumor or into some distant part of the body. In the former case, however, the effect is more rapid, and the constitutional symptoms more severe. (9) The method is attended by a considerable degree of danger. It should, therefore, only be adopted in those cases for which there is no other remedy. The chief risk appears to be from collapse and pyemia. There must always be danger of the

latter if there is a suppurating or sloughing sore. It may be argued that patients whose lives are immediately threatened by a malignant growth will never be cured by any remedy that does not involve some degree of risk. (10) The toxins are of no use unless the cultures are taken from a virulent case of erysipelas or are made virulent by passing the streptococcus through rabbits. (11) The bacillus prodigiosus, in spite of theoretical objections, has the effect of immensely increasing the reaction. (12) The effect is most striking in the case of rapidly growing sarcomata. Slowly growing ones appear to have much more resistance. Probably this merely means that masses of embryonic cells with little organization give way to injurious influences more readily than those that are closely knit together. (13) Patients often gain in weight and strength while under treatment. (14) Treatment should be continued until the whole growth has vanished or has grown so small that it can be removed. (15) If there is a recrudescence of the disease it does not follow that the toxins will be as efficacious the second time as they were the first. Whether this is the result of tolerance having been established or not cannot be said. (16) Recurrence in other parts of the body may take place after many years. (17) The severity of the reaction is very variable. Probably this depends on the rapidity with which the injection is absorbed rather than upon any cumulative action it may possess. Coley suggests that injections of the mixed toxins may be useful in preventing recurrence after sarcoma have been removed by operation. Incidentally it may be mentioned that injections of the streptococcus of erysipelas apparently never cause suppuration. If, therefore, the streptococcus of erysipelas is identical with the streptococcus pyogenes the name of the latter had better be changed.

Pyramidon as an Analgesic.

Landenheimer (*Therapeutische Monatshefte*, April, 1898) has experimented with pyramidon, a derivative of antipyrin, upon more than 100 persons suffering from some disturbance of nervous function. The headaches, which so often occur during convalescence from various psychoses, almost all yielded to pyramidon in doses of ten or fifteen grains. From one-half to two hours were required for the medicine to take full effect. In the rebellious headaches of alcoholism, pyramidon was given with equally good result, the effect of the drug lasting nearly or quite ten hours. In three cases of cerebral tumor the headache was also stopped, but the dose required at first was twenty-four grains three times a day. This amount was afterwards reduced to six grains a day. Painful cramps in the limbs of alcoholic patients were benefited, and one patient who took, without satisfaction, for an infraorbital neuralgia, 120 grains of antifebrin daily, found that thirty to forty grains of pyramidon, taken at a single dose early in the morning, would give complete relief for twenty-four hours. In no instance was any toxic symptom observed. The maximum amount prescribed was forty-five grains daily, divided into three doses, and continued for ten days.

Holocaine.

Randolph (*Johns Hopkins Hospital Bulletin*, July, 1898), who has employed holocaine in fifty-four cases in the Eye Clinic of the Johns Hopkins Hospital, draws the following conclusions:

Holocaine, in so far as its anesthetic properties are concerned, seemed in these fifty-four cases to have been sufficiently effective. In those cases where a test was made of the rapidity of its action, as for instance in foreign bodies in the cornea, pterygia, and after the application of irritating substances, the quickness with which anesthesia was produced was striking. Whether the anesthesia produced after two minutes is sufficiently profound to guarantee a painless iridectomy or a satisfactory cataract extraction I did not determine, but in those cases where operations of this character were performed, and where the holocaine was instilled just as we do cocaine, no difference was observed in the anesthesia from that produced by the latter.

The drying of the cornea and desiccation of its epithelium and the dilatation of the pupil, the absence of which phenomena has been noted by others, have been confirmed by my own observations. The absence of these two properties should recommend it for office use for the removal of foreign bodies, as it is well known that after the employment of cocaine in such cases blurred vision and slight photophobia are often present for hours.

A 1-per-cent. solution of holocaine has not only an inhibitory effect upon the pus organisms, but these organisms are killed when exposed to a solution of this strength for a certain length of time. No attempt was made to determine the point of time at which these organisms lose their vitality on exposure to holocaine, but it may be safely said that this point is somewhere within twenty-four hours. Furthermore, exposure to a 1-per-cent. solution of holocaine for periods of five, ten, fifteen, twenty, twenty-five, and thirty-five minutes showed in every instance a gradually diminishing number of colonies in the plates, so that it is plain, in spite of the luxuriant growth around the glass rods and pieces of wood, many of the organisms were killed.

It may be said, in conclusion, then, that a solution of holocaine of the strength employed in ophthalmic practice possesses distinct germicidal properties, a fact which it is evident enhances the value of this product.

Ulcerative Endocarditis treated with Antistaphylococcus Serum.

Moritz (*British Medical Journal*, July 2, 1898) has been the first to treat a case of ulcerative endocarditis successfully with antistaphylococcus serum. Considering the high death-rate in this disease (80 per cent.), which would be probably higher if other forms of endocarditis could be excluded always, he thinks one case of recovery by the new treatment worth publishing. A man, aged 22 years, who had never had rheumatic fever or syphilis, became ill at Christmas, and was admitted to hospital on January 22. A diagnosis of acute endocarditis was made, complicated by a metastatic right irido-choroiditis. Great care was taken to exclude other diseases, such as typhoid fever. Widal's reaction was absent from the serum and diazo from the urine. In case the disease should prove to be a fresh infection grafted on an old valvular disease, he was treated at first for rheumatic endocarditis. Though the eye trouble was cured by February 20, his general condition grew steadily worse. The liver and spleen were enlarged, and anorexia, epistaxis, a rash, and other grave symptoms arose. It was then decided to try injections of serum. It was hard to decide, however, which of the many bacteria capable of giving rise to ulcerative endocarditis were present in this case. The man had had gonorrhea and cystitis, which, however, had been cured eight months before this illness, and no gonococci could be discovered. Practically the decision lay between staphy-

lococci and streptococci. Having had a similar case before, in which staphylococci were found post-mortem, the author decided to try antistaphylococcus serum, and the first injection was made on February 25. Briefly, the result of six injections of five cubic centimetres each of this serum was to do away with all acute symptoms, and by March 11 the temperature was normal. There remained, however, a mitral regurgitant murmur, which was no longer musical, slight enlargement of the heart, and an abnormally frequent pulse when he left the hospital, on March 25. Whether his cure was permanent is still uncertain, but he had kept well when last heard of, six weeks later. After the second injection there was a metastatic inflammation in the right calf, and after the sixth in the left ankle, which were eventually absorbed without suppuration. Moritz thinks these go to show that the serum acted directly on the diseased valves, since if the cicatrizing process in these were stimulated, particles of vegetations would be more than usually likely to be cast off and to form emboli.

OBSTETRICS.

UNDER THE CHARGE OF

BARTON COOKE HIRST, M.D.,

ASSISTED BY

W. A. NEWMAN DORLAND, M.D.

The Value of Walcher's Position.

Huppert (*Archiv für Gynäkologie*, Band lvi, Heft 1) has made some observations upon the value of Walcher's position at the Dresden Maternity Hospital. He describes in full twenty-one cases in which he employed this position. Pelvic contraction was present in each instance,—mainly, of the flat rachitic variety, the conjugate diameters varying from six and a half to nine centimetres. Excellent results followed the employment of this position in eighteen of the cases; in ten of these, notwithstanding the increase in the diameter, a spontaneous delivery was impossible. The increase varied from one-half to one and a half centimetres in nearly each case. The accuracy of this observation was verified by measuring the diameters of the fetal head, which in many instances considerably exceeded the diameters of the pelvic inlet. As is usual under these circumstances, the uterine pains were feeble and irregular, but as soon as Walcher's position was adopted they became stronger and more regular. Huppert has decided that Walcher's position is of service only if the fetal head is still free and movable above the pelvic brim, or has only entered the inlet with but a small portion of its diameter. The membranes, as a rule, should be ruptured, and especially is the position valuable in the trying cases in which there has occurred a premature rupture of the membranes; the head now descends rapidly and dilates the contracted cervix. The patients were kept in this position for from twenty minutes to three hours, according to the degree of pelvic contraction and the size of the fetal head. It was in 1889 that Walcher first published his paper, in which he

made the statement that the true conjugate of the pelvis varies in length according to the position of the woman. Since then other observers have verified his statement, notably Klein. The junction between the ilium and sacrum was formerly considered to be a true synchondrosis, but it has been proven by Barkow, Kölliker, and Luschka to be a true joint lined with synovial membranes and containing synovial fluid. The mobility of this sacro-iliac joint admits of rotation, and when the symphysis is depressed there results an increase in the conjugate diameter of the inlet. This depression of the symphysis with consequent increase in the pelvic inlet is obtained by placing a cushion back of the sacrum and allowing the limbs to hang, unsupported, over the edge of the table or bed. By this manœuvre the delivery of a living child becomes possible through the usual channel, where otherwise Cesarean section or embryotomy would be required.

Uterine Rupture with Subperitoneal Emphysema.

The diagnostic importance of subperitoneal emphysema, subsequent to rupture of the uterus, is discussed by Dischler (*Archiv für Gynäkologie*, Band lvi, Heft 1), who has made a careful study of the current literature, and reports two cases which occurred in the Dresden Maternity Hospital. The question that arises is, whether or not this symptom indicates the necessity for amputation of the uterus. When rupture of the uterus seems to be threatened the first step in general prophylaxis consists in having the woman lie upon that side which is most distended by the advancing head. Before the head has reached the floor all bearing-down efforts must be interdicted. Walcher's position should be used to facilitate labor, and this may be still further aided by having pressure made upon the head from above, using, however, great care and judgment. When rupture becomes imminent, it is advisable to accomplish delivery as quickly as possible by that method which produces the least additional stretching of the already thinned-out lower uterine segment. Thus, in head presentations the proper course would be perforation with extraction; in transverse presentations, careful version under deep anesthesia, if the child be living, or embryotomy (decapitation) if it be dead. If rupture has already occurred with escape of the child into the abdominal cavity immediate abdominal section is required with extraction of the child from the peritoneal cavity. If the child has only partially escaped from the uterine cavity, it should be removed through the vaginal canal, if the extraction prove easy. Then, if the surroundings be favorable or should hemorrhage follow, the abdomen should be opened at once. The hemorrhage subsequent to rupture will not always be controlled by tamponade or by compression or a combination of the two. Ligation *per vaginam* is never successful; abdominal section with inspection of the rent and ligation of each bleeding-point is the only reliable procedure. In those cases in which there is a spontaneous arrest of hemorrhage with improvement of the pulse an expectant plan of treatment may be adopted. This will consist in the free administration of morphine, absolute rest, vesical catheterization, and no vaginal nor peritoneal irrigation, especially the latter; should the uterus be the seat of a fibroid growth, or should infection have occurred, amputation of the organ is absolutely indicated. The position of the child during labor will vary the degree and location of the rent. As left occipito-anterior positions are the most common and the greatest amount of distention occurs adjacent to the occiput, the most frequent site of laceration

of the uterus is upon the left side. Subperitoneal emphysema occurs in those cases in which prior to the laceration there has occurred an entrance of air into the uterine cavity, or when there have developed within the uterus the gases of putrefaction, these gases or the air entering the freshly formed tears in the tissue. This emphysema will vary in position and amount according to the degree of intrauterine and intra-abdominal pressure, and also according as to whether or not there has been a complete tear,—that is, including the peritoneal coat. This emphysema is to be regarded as an absolute symptom of uterine rupture, and an additional source of danger, inasmuch as it favors the rapid spreading of infectious material. When it is noted, immediate abdominal section with hysterectomy is indicated; no efforts should be made in these circumstances to accomplish delivery through the vagina, but the direct route should be taken to permit of close examination of the point of rupture. A Porro operation should then be performed.

GYNECOLOGY.

UNDER THE CHARGE OF

CHARLES BINGHAM PENROSE, M.D.,

ASSISTED BY

H. D. BEYEA, M.D., AND H. L. WILLIAMS, M.D.

A Case of Rupture of the Vagina during Coitus.

Finkelkraut (*Gaz. lakarska*, 1898, No. 7; *Centralblatt für Gynäkologie*, July 2, 1898) reports the case of a servant girl, 40 years of age, and the mother of several children, who was brought into the hospital white and entirely pulseless, with severe bleeding from the genitals.

The patient stated that during her sleep she had been overpowered and raped by a young and powerful teamster, and that during a violent intercourse she had been suddenly seized with a severe pain in the lower abdomen.

It was found, upon examination, that a tear extended from the posterior vaginal wall to the vault of the vagina, upon the right side.

The genitals showed distinct signs of senile atrophy.

The ruptured tissue was carefully closed with catgut sutures and united by primary intention.

Finkelkraut considered that the cause of the accident was due to the mechanical violence of the act, and to the unelastic, thin, and anemic condition of the senile genitals.

Extrauterine Pregnancy.

J. W. Taylor (*Lancet*, May 28, June 4) prints two valuable lectures on the above subject, from which the following conclusions are abstracted:

Under *etiology* Taylor accepts the fact that the ovum is normally impregnated in the tube; that the fructified ovum is subject to definite growth,

reaching a diameter of from three to six millimetres in the second week; and that other forces beside the motion of the cilia are required to sweep the impregnated ovum into the uterine cavity. He holds that any want of development in the tube, any permanent contraction, any swelling of the mucous membrane, any abnormal length of the tube, any extra weight or impaired mobility of the ovum at its entrance to the tube, any failure of muscular power, or failure of peristaltic action of the tube, may increase the tendency towards a tubal instead of uterine attachment of the ovum. Tubal polypi and fibroid uterus have been found in connection with tubal pregnancy, giving weight to the theory of mechanical obstruction.

Taylor considers all forms of extrauterine pregnancy as being primarily tubal in origin, all other varieties being later developments caused by secondary invasion from the Fallopian tube to some other tissue or organ. These secondary locations are divided by him into three groups: (1) Tubo-abdominal (abdominal or ventral) pregnancy, in which there is secondary invasion of the abdomen; (2) tubo-ligamentary, in which there is secondary invasion of the broad ligament and subperitoneal tissues; (3) tubo-uterine, in which there is secondary invasion of the uterus.

Early rupture between the second and sixth week without warning, and often with no physical signs or suspicion of pregnancy, attended with copious and rapidly fatal hemorrhage, are not rare. Little change takes place in these tubes, except at the exact seat of pregnancy and rupture. The abdominal ostium is normal and the tube itself frequently undeveloped, small, and the muscular fibres defective. Probably atrophy and non-development are responsible for early rupture.

Intraperitoneal hematocele in women is almost always due to tubal gestation, more frequently caused by bleeding from the abdominal ostium of the tube than by tubal rupture, the latter usually causing diffuse and rapid bleeding, which is generally fatal unless operated upon.

Later rupture between the second and fourth month is more common when the pregnancy occurs near the middle or outer third, and although almost invariably fatal unless operated upon, the hemorrhage is never so immediately and directly fatal, without warning, as in the case of early rupture, located near the uterine end of the tube.

In some cases, if the tubal placental site is not disturbed by the rupture, bleeding may be slight or altogether wanting. The escaped blood gives rise to a local peritonitis sufficient to cause adhesion of the intestines and peritoneum, and produces an intraperitoneal hematocele. These adhesions are not firm, and are liable to give way, and permit recurrent bleeding into the general peritoneum, which may be diffuse and fatal, or again become encapsulated. The source of the hemorrhage is not so much from the ruptured tubal wall as the partly detached tubal placenta.

When the fetus escapes from the tube into the abdominal cavity with *unruptured membranes*, while the placenta remains attached to the tubal mucosa, the fetus may go on to term among the abdominal viscera. But for the further development of the fetus unruptured amnionic membranes are *absolutely essential*, in order to protect it from the absorptive power of the peritoneum.

Tubo-ligamentary or broad ligament pregnancy may go on to term, but differs widely from the tubo-abdominal as regards danger to the patient. In the tubo-abdominal pregnancy there is little danger to the woman, after the fourth month is passed, until the child arrives at term. In the tubo-ligamentary

form, however, the mother is in constant danger, owing to the high position of the placenta and its liability to detachment, due to the developing fetus, which is attended with rapidly fatal hemorrhage.

Tubo-uterine pregnancy is the most dangerous of all. In all cases which have gone on to rupture—up to this time—the hemorrhage has been excessive and rapidly fatal. No authentic case is on record where the fetus has ruptured into the uterine cavity and gone on to term..

PATHOLOGY

UNDER THE CHARGE OF

JOHN GUITÉRAS, M.D.,

ASSISTED BY

DAVID RIESMAN, M.D.

The Nature of the Lesions in Typhoid Fever.

Mallory (*Journal of the Boston Society of Medical Sciences*, April) has arrived at the following conclusions as the result of a histological study of nineteen cases of typhoid fever, in seven of which the intestinal lesions were in the stage of necrosis or an earlier one. He says that histologically the essential lesions of typhoid fever are proliferative and that they stand in close relationship to those of tuberculosis, but that the typhoid bacillus bears no such intimate relation to the lesions of typhoid fever as the tubercle bacillus does to the lesions of tuberculosis. In typhoid fever the lesions are essentially diffuse, in tuberculosis they are focal. Experimental work with the typhoid bacillus he regards as unfortunately out of the question, owing to the insusceptibility of animals. Judging from the gross and histological lesions alone, he considers that we have to do in typhoid fever with a mild toxic agent which in part is absorbed from the intestinal tract, in part is produced within the body in the various organs and in the blood.

The intestinal lesions depend upon absorption, mainly through the lymphatic apparatus, but in part through the capillaries. The toxin is diffusible, as is shown by the extension of the lesions in the submucous, serous, and muscular coats to a varying distance outside of the path of absorption. The lesions in the mesenteric lymph-nodes depend on absorption through the lymphatics, while those in the rest of the body depend primarily on the toxin in the general circulation. In the liver they are partly primary, as is shown by the proliferation of the capillary endothelium, partly secondary and dependent on cell-embolism, as already demonstrated, while those in the spleen and bone-marrow depend chiefly, at least, on the toxin in the circulation. How much of the toxin is produced within the organs themselves, he regards it as impossible to say, but the abundant supply and the slowness of the circulation in those organs probably have some effect in the production of the lesions. Finally, he concludes that we may have more or less abundant formation of phagocytic cells generally throughout the lymphatics of the body, as shown by the presence of

phagocytic cells in the lymph-vessels of the heart, lungs, testicles, and pia-arachnoid, and by the focal lesions to which they may give rise. Here the lesions are evidently due to the elimination of the toxin from the blood-vessels and its reabsorption through the lymphatics. To this same class belong the lesions in lymphatics around the portal vessels of the liver..

The cell-changes and the lesions above described are not, he says, peculiar to typhoid fever, except in location, sequence, and degree.

Pathogenesis of Salivary and Biliary Lithiasis.

Hartman (*Le Bulletin médicale*, February 27, 1898) states that a bacteriological examination of a calculus removed from Wharton's duct showed the presence of the streptococcus in the centre of the calculus. Mignot made an extensive investigation of the pathogenesis of biliary calculi in the same manner, and found the presence of microbes (particularly the coli bacillus) in twenty-three out of seventy cases. He found the coli bacillus also in the bile. By experiments with coli bacilli Mignot has caused the formation of calculi with exactly the same structure as those formed spontaneously in the biliary tracts. From this he concludes that biliary lithiasis of infectious origin exists and cannot be contested.

The Bacteriology of Endocarditis.

Desse (*Lo sperimentale*, anno lii, fasc. 1) gives clinical records, followed by analytical tables, of thirty-six cases of endocarditis studied from the bacteriological point of view by microscopical and culture methods. In thirty-four cases the result was positive, in two only it was negative, since neither the microscopical examination nor culture methods revealed in the substance of the valve any pathogenic micro-organisms. The histological examination in both these cases established the fact that they were not a true endocarditis, but an atrophic thrombosis. From an analysis of the cases the author concludes that (1) the diplococcus and the streptococcus are the most constant agents in endocarditis; (2) that these are able to produce, whether alone or associated with other micro-organisms, the ulcerated as well as the verrucose form; (3) that the diplococcus more frequently causes aortic, and the streptococcus mitral, endocarditis.

Concerning the Formation of Glycogen and Pigment in Sarcoma of the Choroid.

The chief interest of this most excellent paper (Best: *Ziegler's Beiträge zur pathologischen Anatomie und zum Algemeinen Pathologie*, 1898, xxiii, Heft 2) lies in the general considerations which the author gives to the subject of tumors arising from endothelioma. The growth forming the basis of the paper was a pigmented sarcoma of the choroid, with extension to the optic nerve, chiasm, and base of brain. Its structure varied considerably in the different localities, but in all it was characterized by necroses and hemorrhages, by absence of pigment in the sarcoma-cells proper while the stroma was deeply pigmented; and by the presence of glycogen in the sarcoma-cells. The sarcoma-cells, which were free from pigment, had a large, vesicular nucleus, with

from one to three nucleoli. Many nuclei presented evidences of degeneration, others showed karyokinetic figures. In sustained sections the glycogen appeared in the form of finer or coarser, homogeneous, slightly refractive drops or globules, lying between the cells. The drops gave the iodine reaction and were soluble in saliva. The tumor was intimately connected with the blood-vessels. The perithelial hyperplasia produced varying appearances, according as it arose from the perithelium of capillaries or that of the adventitia or perivascular lymphatics. The hemorrhages were dependent on the sarcomatous infection, as the author terms it, of the blood-vessels.

By perithelium is understood the endothelium of perivascular lymph-spaces. Such spaces have so far been demonstrated only in the brain, the choroid, and the testicle. But the author believes that, in view of the similarity of the tumors arising from them, the perithelia of the capillaries and the flat adventitial cells of the larger vessels are equivalent to the endothelia of lymph-vessels. But not all "perivascular" tumors are endotheliomata; spindle-celled sarcomata springing from the connective-tissue cells of the adventitia are, of course, to be excluded.

The author disapproves of the tendency to the morphologic classification of tumors represented chiefly by Hansemann, and wishes due weight given to the histogenesis.

Endotheliomata and carcinomata, on this basis, are to be sharply separated; the former have close relations with sarcomata.

Morphologically, endotheliomata are characterized by an alveolar structure, which may arise in different ways. First, it may result directly from a hyperplasia of the endothelium of lymph-sheaths and lymph-capillaries, which usually leads to plexiform appearances.

A second source is the penetration of the endothelioma into blood-vessels and its further growth there. A third variety is difficult of interpretation,—namely, that in which endothelial cell-masses are permeated by capillaries, with or without formation of supporting tissue.

Intercellular tissue, when present, is quite characteristic of endothelioma,—it forms a delicate reticulum the meshes of which enclose from one to three cells. This stroma is, however, not found by the endothelial cells, but has its own nuclei.

The presence of glycogen is almost specific for the endothelial nature of the tumor as against other sarcomas. In hardened sections it appears either as small drops or crescents in the protoplasm or diffused. It is never found in the nucleus, and but rarely in the stroma. Glycogen has been found in many varieties of tumors. Regarding its presence in certain tumors of the kidney (Grawitz's tumor), the author does not think that this is an argument in favor of the view that these tumors represent hyperplastic aberrant suprarenal tissue (since the adrenal is free from glycogen), but demonstrates rather their endotheliomatous nature.

The presence of glycogen in cells is not to be considered a retrogressive phenomenon, since it is very abundant in cells with mitotic figures, which seem to be uninfluenced by it.

The pigment of the tumor of the choroid was not melanin, but of blood origin. And it was suggested that glycogen was most abundant where diapedesis of red corpuscles was most marked. Despite the abundance of pigment about them the endothelial cells contained none, but only glycogen, which leads Best to suspect that the endothelial cells might have the faculty of forming

glycogen out of the constituents of red corpuscles (hemoglobin.) It is possible, analytically, to derive glycogen from hemoglobin.

Glycogen, then, the author concludes, is a valuable biologic index of endothelioma cells, and that, among the sarcomas, it is only found in endothelioma. Its origin in endothelioma is probably hematogenic. In conclusion, he distinguishes three types of endotheliomata: (1) The interfascicular or plexiform; (2) the alveolar and cylindric; (3) the more perivascular forms. The cells resemble epithelial and contain hematogenic glycogen.

Satellitism of Colonies of Pfeiffer's Bacillus in Mixed Cultures.

Meunier (Société de Biologie, Séance du 11 juin, 1898, *La Semaine médicale*, June 15, 1898) found that when Pfeiffer's bacillus is inoculated on a proper medium (blood-agar), on which staphylococcus aureus is then planted, the growth of the influenza bacillus is greatly favored, and colonies ten or twenty times the usual size are developed. Diverse other common bacteria have the same influence as the staphylococcus, but in a less degree. The mechanism of this symbiosis, this *cultural satellitism*, is obscure, but the observations of the author and of Grassberger show that the fertilization is not due to a product directly secreted by the adscititious germ, but to a modification of the hemoglobin of the medium. The matter is also of practical value, in view of the difficulties attending the cultivation of the influenza bacillus. The author recommends the following method: An aqueous solution of defibrinated blood from the rabbit or, better, the cat is prepared, and is used to impregnate the surface of agar. On this medium the Pfeiffer bacilli are then inoculated, and then, after the tubes have been allowed to dry in the vertical position for a few hours, staphylococcus aureus is implanted at two or three points. Twenty-four hours in the incubator suffice to give beautiful satellite cultures of Pfeiffer's bacillus.

Acute Interstitial Nephritis.

Councilman (*Medical Record*, May 14, 1898) read a paper on the above-mentioned subject at the thirteenth annual meeting of the Association of American Physicians. He described the disease as being an acute non-suppurative inflammation of the kidney, characterized by cellular and fluid exudation in the interstitial tissue, accompanied by, but not dependent upon, degeneration of the epithelium. The interstitial lesion was marked by the presence of cells similar to those described by Unna as plasma-cells. These were due to emigration of the parent cells from blood-vessels and their subsequent proliferation. They were formed in other organs, chiefly in the spleen and bone-marrow, from lymphoid cells, and were carried to the kidneys by the blood. Accumulations of plasma and lymphoid cells could be found in the blood-vessels of the kidney without interstitial lesions. Such cases of acute interstitial nephritis were frequently found in the infectious diseases of children, notably in diphtheria and scarlet fever, but they might be found under other conditions.

BOOK NOTICES.

A System of Practical Medicine. By American authors. Edited by Alfred Lee Loomis, M.D., late professor of Pathology and Practical Medicine in the New York University, and William Gilman Thompson, M.D., professor of Medicine in the New York University. Vol. III. Philadelphia and New York: Lea Brothers & Co., 1898.

The excellent standard established by the first and second volumes of this important system, which have already been noticed in the Magazine, is maintained by this, the third volume. The subjects considered are: diseases of the alimentary canal, peritoneum, liver and gall-bladder, spleen, pancreas and thyroid gland, chronic metal-poisoning, alcoholism, infectious diseases common to man and animals, and miscellaneous subjects, including purpura, beriberi, hemophilia, filaria sanguinis hominis, diabetes, glycosuria, and insolation.

The present volume is one of particular interest. Diseases of the alimentary canal are of such frequent occurrence and are, at the same time, of the greatest importance. All of the articles bear the stamp of careful preparation. The sections devoted to the diseases of the stomach are of especial interest. One can but be impressed with the immense strides made in our knowledge of these subjects during the past few years. We are led to speak in the highest terms of this portion of the book.

That appendicitis is not universally regarded as a surgical affection is apparent, from the fact that thirty-eight pages are devoted to its consideration. Throughout this section there is apparent an effort at a rational consideration of the subject, which is in sharp contrast with much that has been written upon the same topic during the past few years. For example, the author does not believe that the term "'typhlitis' is doomed to disappear and give place to the name 'appendicitis.'" On the contrary, he hopes that in the future it will be possible to differentiate between the two, just as bronchitis and pneumonia are now distinguished. The author recognizes four clinical types of appendicitis: (1) catarrhal or medical; (2) mural or parietal; (3) acute or subacute perforating; and (4) periappendicitis. A few quotations will exhibit the author's views on the subject of treatment. "We believe that in the very near future physicians and surgeons will regain their mental poise and will treat appendicitis with the same good sense and judgment, and with the same conservative regard for the life and interest of the patient, as they do every other disease." "It is the physicians and surgeons who take middle ground in the treatment of appendicitis, to whom we must look to save every patient from being subjected to a serious operation on the one hand, and, on the other, to prevent those who should be operated upon from being

allowed to die without timely surgical aid. An extremist is seldom right on any subject." "Nothing more absurd could be proposed for the treatment of appendicitis than that every case diagnosticated as such should be operated upon within the first twenty-four hours, which, every physician and surgeon of experience should know, is before the disease can be diagnosticated with any certainty in many cases. It is not possible at present to fix the day or hour of the disease when an operation for appendicitis is advisable. The proper time to operate after the diagnosis is established and the proper case for operation must be determined by the medical man or men in charge of the particular case."

Of the medical treatment the author says, "With due deference to the many able and distinguished writers who oppose the administration of laxative medicine in appendicitis, I most emphatically advise laxatives (castor oil or calomel to be preferred) sufficient to very thoroughly unload the bowels. And I am just as emphatic in my belief that opium is an objectionable medicine, inasmuch as it certainly increases the always present difficulties of differentiating the gangrenous cases; while it allays the patient's pain and the physician's anxiety, the fuselike appendix smoulders."

In the matter of diet, it is held that "whether it be a catarrhal case of three days or a parietal case of three weeks no solid food should be allowed until the patient is well on in convalescence."

Such views as these are, in our opinion, worthy of the widest acceptance and of universal application.

The chapters on intestinal parasites and trichinosis were contributed by Dr. George Dock. Food-poisoning, a new and important subject, is fully presented by Dr. Victor C. Vaughan. Among the other notable chapters are "Diseases of the Peritoneum," by Dr. H. A. Hare, and "Diseases of the Liver and Gall-Bladder," by J. E. Graham. The latter occupies nearly 200 pages. The remaining portions of the book are equally deserving of comment, but it is impossible to call attention, in any detail, to the excellence of each chapter. In a word, we feel that we can give this system our fullest endorsement.

THE NERVOUS SYSTEM AND ITS DISEASES. A Practical Treatise on Neurology for the use of Physicians and Students. By CHARLES K. MILLS, M.D. Philadelphia: J. B. Lippincott Company, 1898.

The volume recently issued discusses diseases of the brain and cranial nerves. It is the most thorough and exhaustive work on the subject yet published. A proper review is impossible in the space at our command. We can only hint at the richness of its contents. The book opens with a general sketch of the morphology and physiology of the nervous system, followed by a chapter on general pathology, symptomatology, and therapeutics. The section on treatment is conservative and will serve as an excellent guide in the management of patients. These preliminary matters occupy 258 pager, and the remaining 750 are occupied by a study of individual diseases beginning with those of the membranes and ending with the cranial nerves.

Probably the best chapters of the book are those devoted to the cranial nerves. Experience and careful study are shown everywhere, but nowhere is it more evident than here. There has been some adverse criticism of the nomenclature and terminology used by the author. It is largely based on that advocated by Professor Burt D. Wilder, and in some instances the names are a little unfamiliar. The question of nomenclature is a more serious one to neurologists than appears at first sight. There is no doubt that at the present time much confusion and misunderstanding are caused by the fact that there is a lack of unity in nomenclature. Different authors use the same word with less or greater different shades of meaning, and also use many words as synonyms. Reform of this must come sooner or later, and the sooner it comes the better, not only for the men of science, but for those much suffering people, the medical students.

The book is well made, the illustrations good, the proof-reading excellent. The author may well be proud of his work, and we hope that before too long we may have the opportunity to read the second volume.

Atlas of Methods of Clinical Investigations, with an Epitome of Clinical Diagnosis, and of Special Pathology and Treatment of Internal Diseases. By Dr. Christfried Jakob. Authorized translation from the German. Edited by Augustus A. Eshner, M.D., with 182 colored illustrations upon 68 plates, and 64 illustrations in the text. Philadelphia: W. B. Saunders, 1898. Price, $3.00.

This work is one of the widely known Lehman medicinische Handatlanten, editions of which have already appeared in nearly every European language. The value of the book depends very largely upon the illustrations, many of which are colored. The varieties of blood-corpuscles, bacteria, tube-casts, and crystals found in urinary sediments are beautifully depicted. The plates representing diagrammatically the various diseases of the thoracic organs are altogether admirable. The epitome of special pathology and treatment, which occupies about 100 pages, is too brief to be of much value, even to the student. The work of translation has been exceedingly well done.

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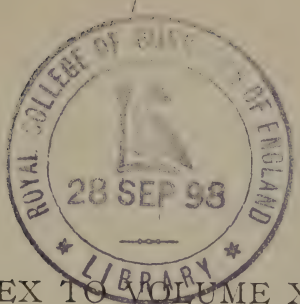

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